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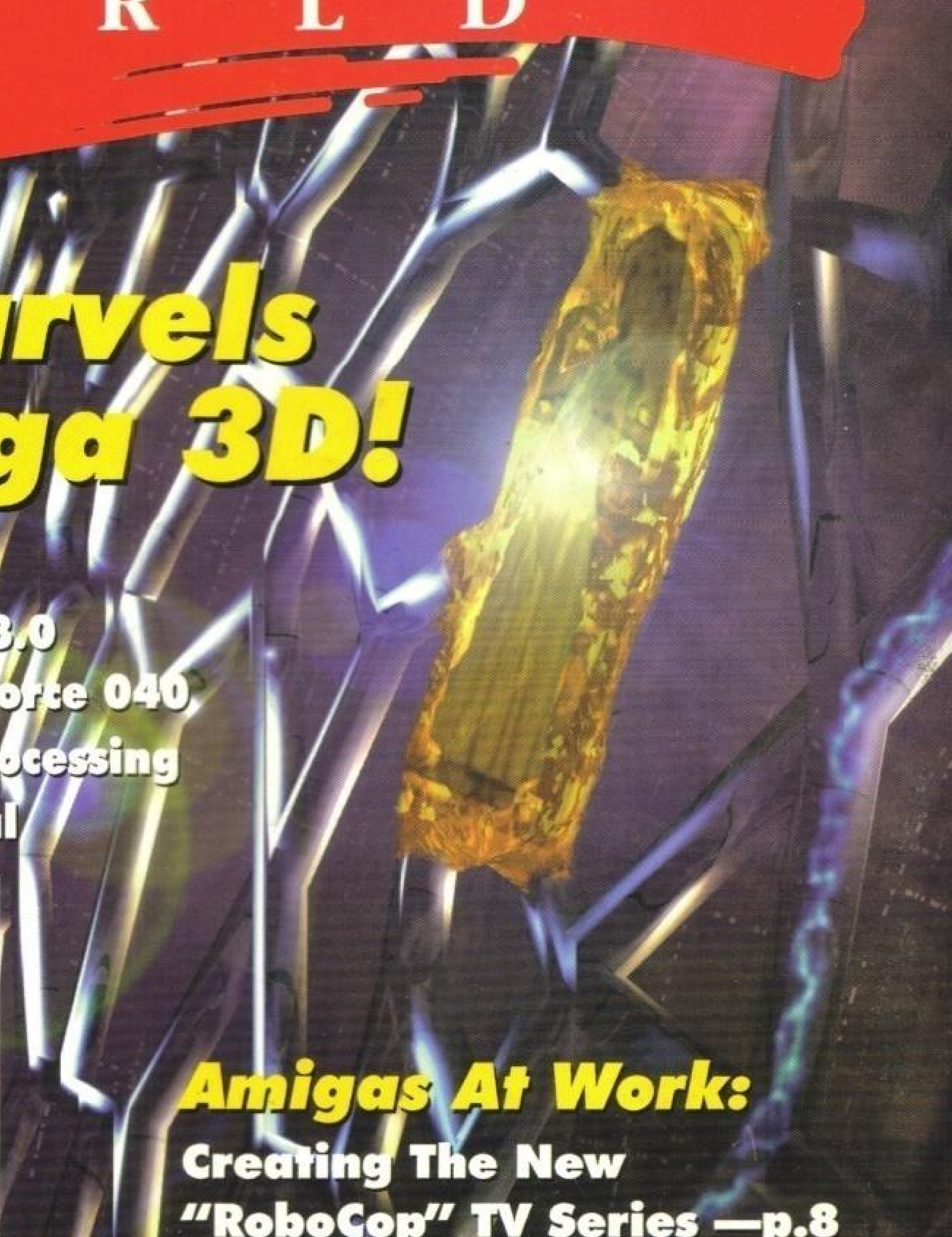

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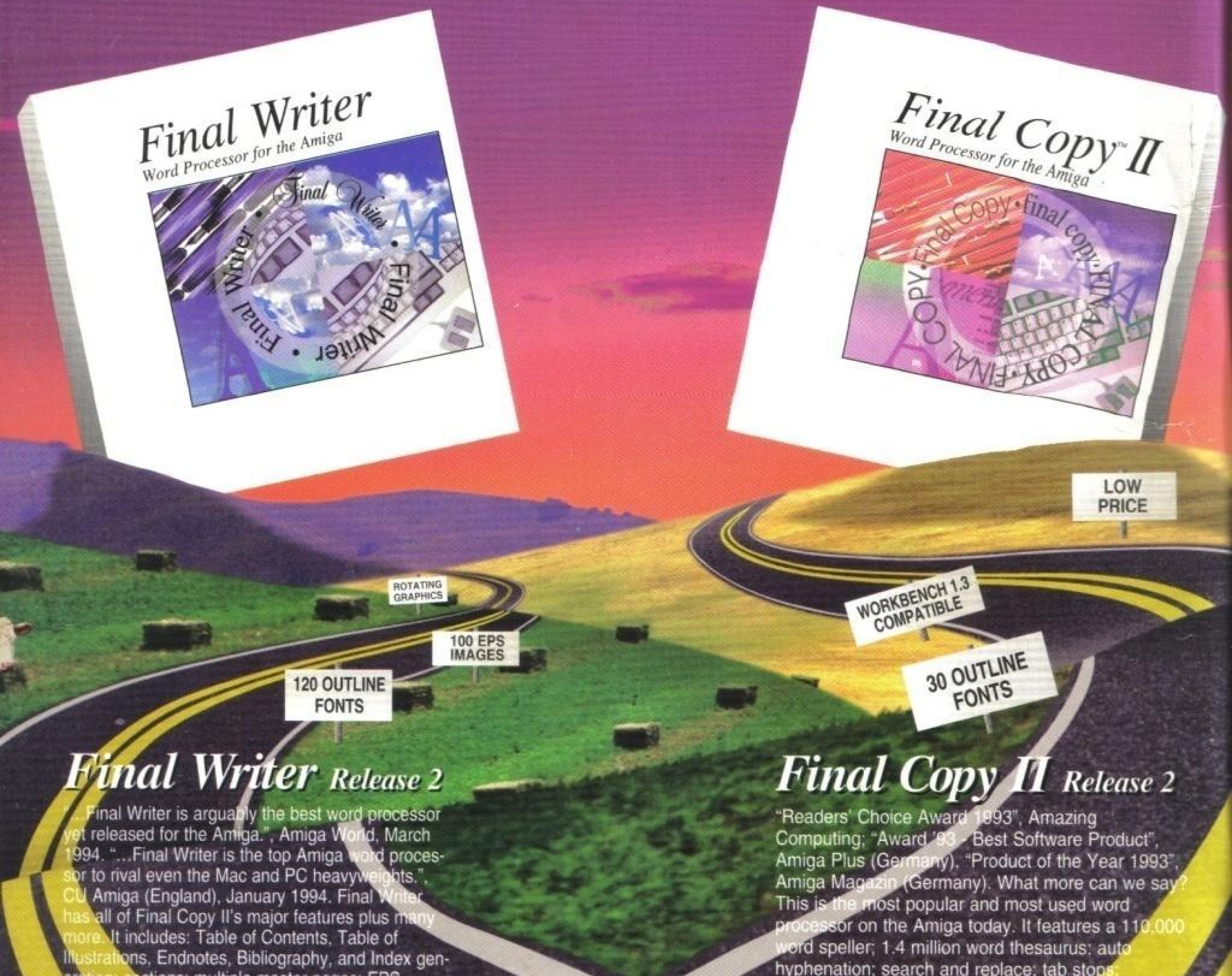
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Features	WarpEngine	GVP-040/40	X-Calibur	FastLane	4091	DKB3128
28MHz, 33MHz, 40MHz Versions	YES	NO	NO	NO	NO	NO
28MHz Upgradable to 33 or 40MHz	YES	NO	NO	NO	NO	NO
Expandable onboard to 128Megabytes	YES	NO	YES	YES	NO	YES
Built in SCSI-2 Fast Hard Disk Controller	YES	NO	NO	YES	YES	NO
Uses Industry Standard Amiga SIMM Modules	YES	NO	YES	NO	NO	YES
Uses any Combination of SIMMs	YES	NO	NO	NO	NO	YES
Allows use of the Memory from the Amiga	YES	NO	YES	NO	NO	YES
Uses a Zorro III slot	NO	NO	NO	YES	YES	YES
Memory Speed Much Faster than Amiga Ram	YES	YES	YES	NO	NO	NO
Works in Amiga 3000	YES	YES?	NO	NO	NO	Yes
Zorro III DMA or Buster Problems	NO	NO	NO	NO?	YES	?

*The speed of Ram installed on a Zorro III Memory board is about 30 to 40% slower than the Ram on the motherboard. [1]GVP uses custom memory modules that c cost up to 1.5 times as much as the standard memory used on WarpEngine. This memory can only be used on a GVP accel. Bd. [2]The X-Calibur requires you to ins 2 SIMMs at a time. [3]The FastLane uses old 8Bit memory modules that must be installed 4 at a time.

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FIRST IMPRESSIONS

Channel surfing to the heart of the matter . . .

It's a brand-new week beginning as I sit down to write this, and I've just completed what has become a regular Monday-morning ritual during this long hot summer of the Commodore collapse: Scan the weekend's online activity for the latest speculation about CBM; check in with our sources involved in the Commodore liquidation proceedings; call our contacts around the country (and the world) for their input. (The latter two activities, of course, usually result in the quashing of the rumors gathered from the first activity.)

The latest news on where things stand in the resolution of the Commodore situation is presented in the lead news item in "Overscan" (see p. 4). But what strikes me most this morning is something I haven't been able to get out of my head for the last two days. Let me explain.

It's an ordinary Saturday evening in rural New Hampshire—sip a cocktail, take a turn at the barbecue grill, and then slip off for a long walk in the woods with my dog. (We both agree not to talk about Commodore, so our ramblings are quiet and meditative.) Returning home, and with no "downtown scene" to lure me out to more exciting nightlife, I flop down on the wicker couch on the porch to see what's on the tube.

Checking out the TV Guide, I start with the 8 PM listings. Slowly, this curious line of association begins to form. Here's *Babylon 5* beginning at 8, with *Clarissa Explains It All* (a Canadian animated sitcom) coming on at 8:30 on Nickelodeon, and then *RoboCop* (the series) clicking in at 9 on a third channel. Hey, these are all *Amiga* shows! How neat. But, suddenly, weekend calm gives way to workplace concerns—and I'm furious all over again with Commodore.

Here on the first page I flip to in the TV Guide, on a random evening without a thought in my head, we've got the Amiga showing off its stuff on three different networks in a one-hour span. And, meanwhile, the Amiga is languishing with its fate in doubt, tied up in legal proceedings on an island in the Caribbean because some greedy bozos ran the company into the ground.

But what a marvelous machine this Amiga is! Look at all the wonderful films, TV shows, animations, and videos that the Amiga and all those fabulous Amiga tools have helped to create. (Which is, by the way, what our retrospective feature this month on Amiga 3-D from 1985 to the present is all about.) It's simply not possible that all of this is going to go away—*nobody* has ever done it like the Amiga and Amiga people. And nothing Commodore can do will ever change that.

So that's why I'm pulling for some of those groups out there who are trying to get control of the company and put the Amiga back on track. From everything we've gleaned, a resolution to the liquidation is in sight. And when the strongest contender emerges, there will be a fiercely loyal Amiga community ready to help them keep the Amiga what it's always been: the best damn personal computer out there!

Daniel Sullivan

Daniel Sullivan
Editor-in-Chief

P.S. Speaking of the great Amiga people who have made the machine what it's been over the last decade, probably no one would assume a higher rank than Jay Miner—because, literally, he made the machine. (And that was well before Commodore ever got involved with it.) Jay died recently after being ill for some time. We will all miss the "Father of the Amiga." (See p. 6 for more on Jay Miner.)

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AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. *AmigaWorld* is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. US subscription rate is $29.97, one year; $57.97, two years; $83.97, three years; Canada, $41.97 (includes GST), and Mexico $38.97. Foreign Surface $49.97. Foreign Airmail $84.97. US funds drawn on US bank. Prepayment is required on all foreign subscriptions. All foreign rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. On-line on BIX: Amiga.World (in Amiga.exchange); CompuServe: 76376,2137; Portal: Go AmigaWorld. Entire contents copyright 1994 by TechMedia Publishing, Inc. No part of this public-ation may be printed or otherwise reproduced without written permission from the publisher. **Postmaster:** Send address changes to *AmigaWorld*, Subscription Services, PO Box 595, Mt. Morris, IL 61054-7901. Nationally distributed by Kable News Co. *AmigaWorld* makes every effort to ensure the accuracy of articles, listings, and diagrams published in the magazine. *AmigaWorld* assumes no responsibility for damages due to errors or omissions. PRINTED IN THE USA. Posted under Canadian International Publication agreement # 0257478.

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COVER PHOTO COURTESY OF LEE WILSON AND THE ROBOCOP VISUAL EFFECTS TEAM

OVERSCAN

News, New Products and Networks

DEADLINE SET FOR COMMODORE ACQUISITION

As this issue was going to press, *AmigaWorld* learned that a July 15 deadline had been set for final bids in the Commodore liquidation proceedings. By that date, interested parties were to submit final written propositions and post deposits to the trustee appointed by the Bahamian Supreme Court to administer the liquidation. Commodore International is incorporated in the Bahamas.

While *AmigaWorld* is not at liberty to divulge the identities of groups involved in the bidding as of this writing, there were approximately a half-dozen interested parties when the bidding process began in June. We believe that at least one group has already complied with the July 15 deadline. It was not known at this time which of the other parties might follow suit. Whether Samsung, the Korean electronics giant which has been widely reported as having an interest, would submit a final bid was also unclear.

Indications are that at least one or more of the bidders intend to resume production and distribution of current Amiga models (A4000, A1200, and CD32) and to explore options for the development of new Amiga technology in the future. (Before Commodore wound down its engineering operations in West Chester, considerable development work had been done on the new "Triple-A" chip set and in several other areas, as well.)

As far as how long after the July 15 deadline it would take to announce a decision, it was not clear as of this writing. However, in conversations with the court-appointed trustee and other participants, we were assured that everyone involved realizes that "time is of the essence" in securing a speedy resolution.

AmigaWorld will continue to monitor these events closely and report further developments to its readers. If there are any breaks in the story before our next issue appears, we will post such news on the networks and update our telephone hotline (1-800/441-4403 or 1-603/924-0100 and ask the receptionist for the "Commodore update").

—DS

TOAST(ER) BREAK

Time for a change of scene? **Pro Wipes Vol. 1** ($129.95, ***Matrix Productions***) will smoothly take your Toaster videos from one scene to the next with its 75 transitions and wipes. Pro Wipes is comprised of 33 live (actor) action wipes, 42 assorted wipes (including 3-D style, matte, and soft edge), 16 alpha effects, and Matrix's exclusive 24-bit effects. The volume covers a wide range of categories including weddings, sports, and music, and offers a collection of general-purpose wipes suitable for a variety of projects. Workbench 2.04 or greater is required. (RS#120)

OVERHEARD

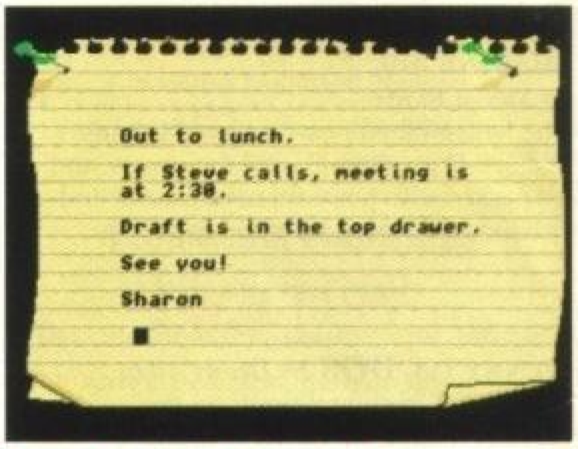
Good news for anxious Amiga owners wanting to upgrade—copies of AmigaDOS 3.1 are available from ***Expert Services***. To place an order, contact the company at 7559 Mall Rd., Florence, KY 41042; 606/371-9690 (phone).

FROM THE DESK OF . . .

MediaDesk (RS# 121) of Campbell, California, wants to bring Germany's popular MAXON Computer products to your desk(top). The first imports to hit US shores are **Cinema 4D** and **Desktop Magic**.

Cinema 4D ($198) is a 3-D modeling, rendering, and animation package that promises professional results with minimum effort. An exclusive feature of Cinema 4D is its interface, which lets you apply dozens of effects to objects without ever leaving the 3-D editor. The software supports several popular file formats and graphics cards. It requires 1.5 MB of RAM and Workbench 1.3 or later.

Ever worry about what happens to your computer while you're away from your desk? With Desktop Magic ($39.95) screensaver you can finally relax. The software will shield your monitor from "burn-in," personalize your Workbench, and even password-protect your system. It offers a choice of more than 25 entertaining animations and graphics (or you can import your own IFFs or ANIMs). In addition, Desktop Magic has a number of unique bells and whistles—literally. You can select a "tune" (from more than 80) to accompany a screensaver and assign sounds to various Workbench features; for example, Desktop Magic can tell you when a disk is ejected or inserted. The package requires 1MB of RAM, Workbench 1.3 or later, and a hard disk (or two floppy drives).



Out to lunch.

If Steve calls, meeting is at 2:30.

Draft is in the top drawer.

See you!

Sharon

Presto! Desktop Magic is a screensaver and message pad all rolled into one.

To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 63.

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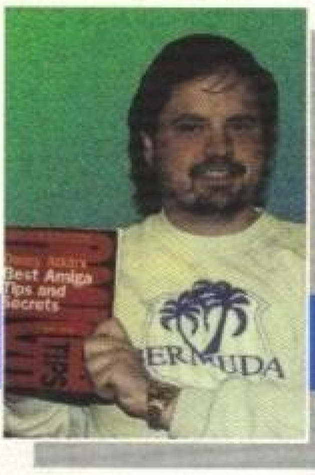


Denny on DOS

HINTS & TIPS FOR MASTERING THE OPERATING SYSTEM

By Denny Atkin

#4—Wild Over Wildcards

One of the nicest features of AmigaDOS is its support for long file and directory names. MS-DOS users are limited to eight characters, a period, and a three-character extension, resulting in really descriptive names like BRPTOC94.XLS. On the other hand, Amiga owners can use up to 30 characters to name files, making possible helpful names such as Budget.Report.October.94.PCalc. However, while filenames that long are great when you're searching for data using a file-requester window, they're a pain when you have to type them in from the Shell.

Most welcome in such situations are wildcards, special characters you can use to select all files that match certain criteria. Using the above example, if you wanted to copy all of your budget-report files for a year, you'd end up typing 360 characters worth of filenames! Using wildcards, though, you could copy the files simply by issuing a command like COPY BUD#? TO DF0:. Your fingers will definitely thank your brain for making the effort to learn about AmigaDOS wildcards.

Wildcard Basics

The two most important wildcard characters are # and ?. The question mark will match any individual character; typing DIR ?ILL would, for example, list the files BILL, PILL, SILL, and WILL, but not ILL, TRILL, or ROADKILL. The pound sign means "match any number of occurrences of this character," so typing DIR #?ILL would match all of the above examples.

The question mark is handy for matching files that have spaces in the name, for it saves having to put the filename in quotation marks. For instance, to delete a file called MY DIARY, simply type DELETE MY?DIARY. Furthermore, you can use multiple wildcards in an expression: typing LIST PROGRAM#?.? would match PROGRAM1.C, PROGRAM32.H, and PROGRAM.A, but not plain PROGRAM or PROGRAM.INFO.

Quick Tip:

AmigaDOS 2.04 and later can optionally support the * wildcard used by MS-DOS and UNIX; the asterisk wildcard is equivalent to #?. You'll need a program such as the public-domain Setstar or Starburst to enable the use of *. Note that the asterisk can only be used in conjunction with other characters—an asterisk alone means "the current Shell window"—so typing COPY * PRT: will simply echo everything you type to the printer, rather than copying all the files in the current directory there.

You can search for multiple patterns using the parentheses and the vertical bar. For instance, typing COPY (C|R|S)#?.INFO RAM: will copy all the icons whose names start with C, R, or S to the RAM Disk. Also, under AmigaDOS 2.04 and later, you can use square brackets and a dash to match a range of characters. For example, typing DELETE DF0:[E–K]#? would delete all files on df0: whose names begin with the letters E through K.

Sometimes it's easier to search for all files that *do not* match certain criteria. Under AmigaDOS 2.04 and later, the tilde lets you do this easily. Typing COPY DF0:~(DISK.INFO) TO RAM: ALL will copy every file on df0: to RAM *except* for the disk icon. Typing DIR ~(#?.INFO) will list all files in the current directory except for icons.

Filenames should not contain any wildcard characters, but if they do, a question mark will match them. If you want to match a specific wildcard character in a filename, precede it with an apostrophe. For instance, DIR A#?') would list all files whose names start with A and end with a close-parenthesis. To match an apostrophe—such as in the filename DENNY'S—use two apostrophes, as in DENNY''S.

Oh Say, Can You CD?

Under AmigaDOS 2.04 or later, the CD command supports wildcards. This makes changing to directories with long names much easier. For instance, if the directory you want to change to is named VideoToasterPictures, you could type CD VI#? to make the change. (If more than one directory name matches the wildcard string, you'll get an error message stating "More than one directory matches." You need to make sure that you type sufficient characters so that the match is unique.)

You can use multiple wildcards in the same CD command. For example, to reach the directory VideoToaster-Pictures/TestPictures/Babylon5Stuff, you could type CD VI#?/TE#?/BA#?. Take note that wildcards work only for the directory names; you can't use them to match the device name.

Handy Scripts

If you're running AmigaDOS 1.3 or later, you'll find two scripts in the S: directory that add wildcard support to commands that normally work only with single files. SPAT and DPAT (Single PATtern and Double PATtern) are particularly handy under 1.3, where commands such as Protect don't support wildcards.

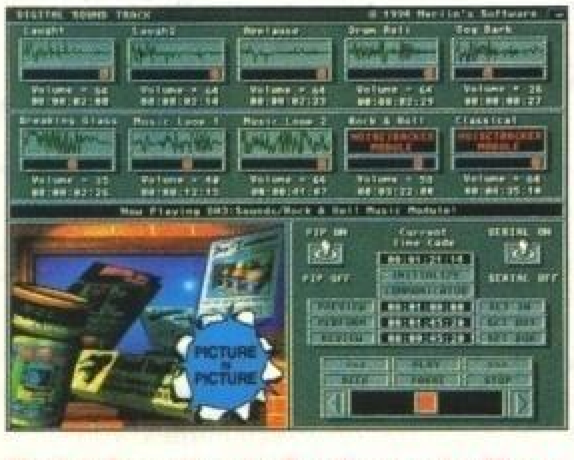
SPAT is used when commands accept only a single argument. For instance, typing SPAT TYPE #?.TXT will show all the files in the current directory with the extension .TXT, using the TYPE program. (If you get the message "Unable to load SPAT" and you know the file is in your S: directory, it probably means the Script bit is not set on SPAT, which is actually an AmigaDOS batch file; this can happen when copying files to a hard drive. Typing PROTECT S:SPAT +S should fix this problem.)

If the command you're using requires two arguments, use DPAT instead. To set the script bit on every file in your S: directory, you'd type DPAT PROTECT S:#? +S. ■

Denny Atkin is author of the book ***Denny Atkin's Best Amiga Tips and Secrets****. Send suggestions to him via e-mail at DennyAmiga@aol.com, or write to him c/o* ***AmigaWorld****.*

VIDEOS YOU CAN HEAR

Tired of the "sounds of silence?" With **Digital Soundtrack** ($99.95, *Visual Inspirations*) you can add sampled sounds and music (MOD) files to your videos. Features include a preview mode, jog and shuttle controls, and picture-in-picture support for IV24 and OpalVision. Digital Soundtrack supports various single-frame controllers including the Personal Animation Recorder, AmiLink, and V-LAN. It requires AmigaDOS 2.0 or later. (RS# 129)



Digital Soundtrack: For those who like a little music with their video.

FOR YOUR REFERENCE

A quick browse of the Amiga reference shelf this month reveals three options for avid readers, and one for viewers.

So, you've read your Amiga manual from cover to cover and still have some questions? ***Bruce Smith Books*** of England offers *Amiga Workbench 3 A to Z* by Peter Fitzpatrick (ISBN: 1-873308-28-0). It features in-depth tutorials on setting up the Amiga via various Workbench utilities, as well as a comprehensive overview of the general ins and outs of the interface. (RS# 122).

Who says Commodore's 8-bit computer is extinct? The appropriately named *DieHard* magazine is devoted to loyal Commodore 64, 128, and 128D fans. The magazine is even printed from a Commodore 128D! Subscriptions are from $16.97 for one year (or $49.97 for the magazine and companion disks). (RS# 123).

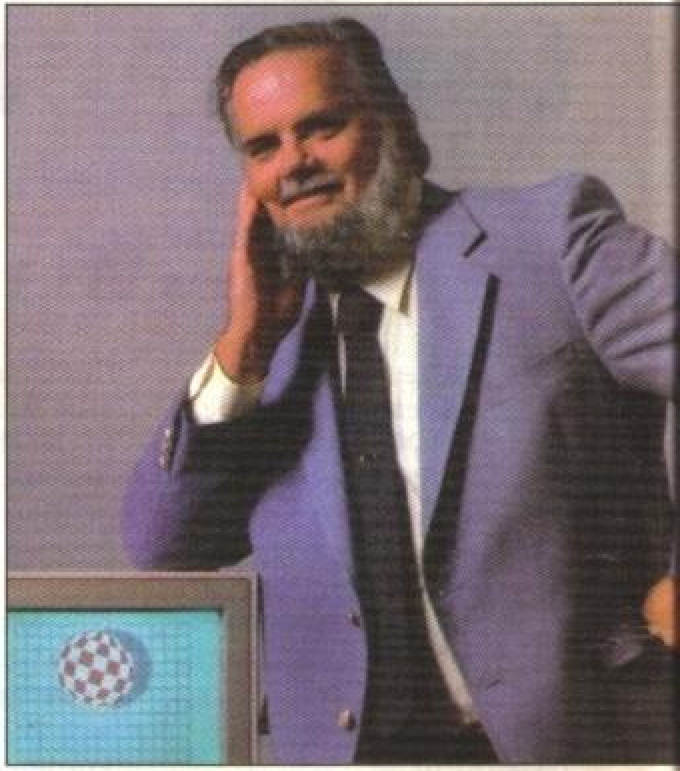
Want to master ***GVP's*** ImageFX image-processing program, but don't have time to read its extensive manual? GVP suggests you pick up a copy of its **Video Guide to ImageFX** tutorial. The three-and-a-half hour tape is hosted by animator Rusty Mills of Warner Bros. It features a walk-through of the tools panel for beginners and plenty of time-saving tips and hints for seasoned artists, too. (RS# 124)

JAY MINER, "FATHER OF THE AMIGA," DIES

Jay "Padre" Miner, better known as the Father of the Amiga, passed away at El Camino Hospital in Mountain View, California on June 20, 1994, after a long period of failing health. Touching memories from Amiga users have flooded the online networks, each relating a personal tribute to this humorous, soft-spoken genius.

Who can forget the risk-taker who abandoned prosperous Atari development in 1982 to start a small computer company that later became the Amiga Corporation? Miner served not only as the inspirational leader for the original Amiga team (which included RJ Mical and Dale Luck), but also as the resident watchdog for "Project Amiga." Miner fought to ensure that the original Amiga shipped with 512K instead of the 256K Commodore insisted upon, and that the architecture moved graphics fast—so fast that the rest of the industry is still playing catch-up.

His legendary contribution to the personal-computing industry is not his only legacy. Miner is also credited with improving the lives of millions with his revolutionary work in the development of microchips for pacemakers.



Jay Miner

Until health problems interfered with his travel plans, Miner made many personal appearances at trade shows, sharing with numerous Amiga owners the same enthusiasm and commitment that fueled the birth of the platform.

A message that appeared in the Amiga area on GEnie from longtime Amiga fixture Peggy Herrington summarizes it all quite well: "Adios, Jay. We'll never forget you—or your Amiga."

—TW

LOTS FOR LIGHTWAVE

So, physics was never your strong point in school? No problem. With **Newton's Law** ($249, *Cybernetica*), a physics module for LightWave, you set the parameters and Newton's Law figures out the rest. You choose what the object is made of from the materials list and physical properties are assigned by the program accordingly, thereby establishing an object's mass, density, friction, elasticity, and so forth. Newton's Law's World Settings feature also lets you define how your object will react to various natural forces such as wind, electromagnetism, and air pressure. (RS# 126).

PowerMacros for LightWave ($149, *CineGraphics*) consists of 17 macros designed to make your job a little easier. It adds new features to LightWave and enhances your productivity at the same time. PowerMacros includes a macro to load an entire scene into Modeler, another to clone an object, and another to render unlimited scenes sequentially to any combination of destinations. (RS# 127)

COMMAND ALADDIN

If you want to put Adspec's Aladdin 4-D animation software under your spell, you won't need to rub a magic lantern, but you may need **GenieTools, Vol. 1** ($24.95, ***Shead Data Processing***). The collection offers a variety of tools including the TriSub and DoBeSphere functions, which let you create triangle-based spheres, and the LissaCurve control, which creates complex curves and helixes. GenieTools includes online help and sample drawings. (RS# 131)

CHECK, PLEASE

Is your monthly bank statement leaving you a little "spent"? Let **Checks & Balances** ($59.95, ***AmiSoft***), balance your books and print out your checks. (You will need special blank checks, available from AmiSoft.) When you receive your statement, simply enter the ending balance and click on the cleared transactions. You can even generate custom reports. 1MB of RAM, a floppy drive, and AmigaDOS 2.0/3.0 required. (RS# 125) ■

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Prime-Time PD

ON-LINE SOURCES FOR FREELY DISTRIBUTABLE SOFTWARE

By Tim Walsh

With so many online exchanges concentrating on the liquidation of Commodore, I thought I might devote a portion of this column to that subject. My recent first-hand look at the Bahamian court system has given me unique insight and perspective on the process.

LIQUIDATION UNDER WAY

Years ago, in those sleep-inducing classes known as Business Law 101 and 102, I studied many laws, then promptly forgot most of what I learned. One of the few things I recall is that we spent a lot of time studying business bankruptcies.

Discussions with those familiar with the Bahamian Supreme Court system revealed plenty of correlation between US and Bahamian laws as they pertain to corporate bankruptcies. With Commodore's highly publicized volume of debt to US-based creditors, the first order of business in Commodore's liquidation process was the appointment of a court-selected or -approved trustee.

In US law, a trustee assigned to oversee the liquidation of a company must make sure the company's creditors lose as little money as possible through the liquidation process. Clearly, the biggest part of any trustee's job is to negotiate with any third parties interested in purchasing the bankrupt company's assets (in this case, primarily the technology) to the end that the creditors are as satisfied as possible.

This negotiation process is happening, and it's lengthy. Commodore's liquidation is a complicated affair, far more involved than the simplified description given here. There are at least three major business units (and many smaller ones) involved: Commodore Electronics Limited, Commodore Business Machines, and Commodore International Limited. Roadblocks and delays notwithstanding, a new, Amiga-savvy owner stands a good chance of emerging from the process.

Regardless of which bidder buys Commodore, we're unlikely to witness a parceling of the technology in the liquidation process, with Company A getting CD32, Company B getting the AA chip set, and so on. Rather, one company will probably acquire everything, and it's up to that company to determine the fate of that technology. This can be viewed as either good news or bad.

The good news is that there is money in making computers—Amiga computers. There are production plants sitting idle that could be activated in about a month, and some of the efficient, profitable Commodore business units, such as Commodore Canada, could revamp sales, marketing, and R&D efforts in a short time.

The bad news is that there's a lot of online speculation to the effect that some companies that are seeking to acquire Commodore have no interest in continuing the Amiga. But because some of these companies have quietly leaked to the press their intention to produce Amigas again, I'm not particularly worried. Even if those companies don't win the bidding war, licensing of the technology should revive some form of Amiga production and distribution.

PRINTER CALLS

Commodore's liquidation notwithstanding, there's one subject dear to the hearts of readers that generates more phone calls to our office than any other: printers. Amiga users are constantly searching for new drivers, new printer utilities, anything that will make their printers produce better output.

To address that problem, here are some solutions I've found online. A recent utility called Virtual Printer, by Garrick Meeker, contains IFF_Printer and Screen_Printer. These two new "printer drivers" install in your Devs:Printer directory, but that's where any similarity to conventional printer drivers ends. Based on Commodore's HP_LaserJet and EpsonX printer drivers, these programs direct printed output to disk when you select the print option from graphics-based programs.

Using these drivers is simple. Select IFF_Printer as your printer driver using the Printer option in the Prefs directory, then create and assign a directory called "Pages," which holds the printed output in IFF format. Whenever you print, the output is saved as an IFF file in the Pages directory.

When you use Screen_Printer as a printer driver, the output appears on the screen—much as with the Print Preview option found in many word processors. While both these drivers are novel in execution, they do serve a practical purpose. Their screen-based output is realistic, since the resolution can be adjusted from 80x68 to 300x300 dpi—just like a real printer driver.

Troubled Cannon BubbleJet printer owners make many a phone call to our offices. Printer-driver guru Wolf Faust has kindly posted on most major networks a CanonBJC package that contains a printer driver for the Canon BJC800 and compatible printers. This is part of Faust's CanonStudio collection, which contains drivers for all popular BubbleJets. Along with standard print controls, the freely distributable BJC800 driver offers color and 256-grayscale adjustment. It also includes gamma correction, brightness, contrast, and filter color. Dither routines let you adjust the dither matrix for more colors than the standard 4096.

These are just some of the many PD utilities available. If you're having printer woes, the solution is literally a (modem) phone call away.

Network Voice Numbers

BIX
800/695-4882
617/354-4137

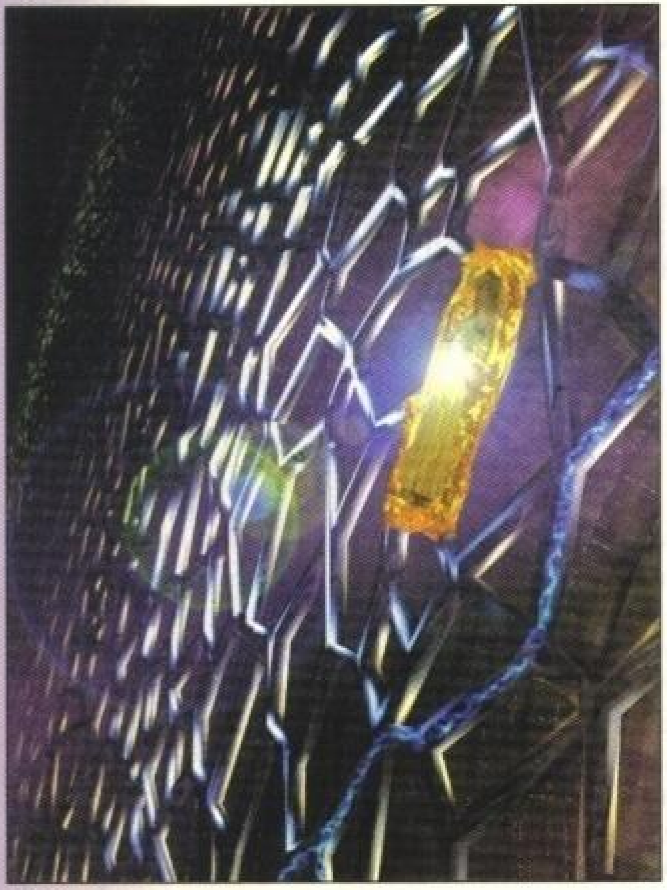
CompuServe
614/457-0802
800/848-8199

Delphi
800/695-4005

GEnie
800/638-9636

Portal
408/973-9111 ■

Write to "Prime-Time PD" c/o ***AmigaWorld*** *Editorial, 80 Elm St., Peterborough, NH 03458; or contact Tim through the Internet at "twalsh@bix.com".*



Is it LIVE... or is it LIGHTWAVE?

*On the syndicated **RoboCop** TV show, 3-D Amiga graphics play a key role, fooling the eyes of even the most jaded viewers.*

By

Barbara

Gefvert

They say imitation is the sincerest form of compliment. But maybe not for the Visual Effects team of the *RoboCop* TV series. An inability to recognize their work is perhaps the highest compliment you can pay these Amiga artists. "Allen Hastings [developer of LightWave] saw the show and didn't even recognize the LightWave effect," says Visual Effects Supervisor Lee Wilson, referring to a particular scene.

What's behind this unusual outlook? Mainly, the one thing that most distinguishes the group's work from that of many other 3-D artists: their effects must integrate seamlessly with live action. Unlike shows that are set in unfamiliar territory, *RoboCop* takes place in a common setting among familiar objects. The task of integrating 3-D models into this environment is arguably more difficult than placing them in an unearthly locale. If a show took place on Mars, for instance, you might find it much more difficult to tell whether the integration was convincing. So Wilson's mission is to create "scenes where, if all went well, no one would notice the effect at all."

IT'S LIGHTWAVE!

The *RoboCop* series, based on the popular movies, features the namesake character, who himself once appeared—ever so briefly—as a LightWave object. More often, though, Wilson and crew (Julie Kealey, Alan Kapler, Anthony Paterson, Larry Adlon, Ian Britton, Angela Knight, Colin Cunningham, and Mark Glaser) use LightWave to create other "players" in the show. Wilson describes one scene where a man pushes a baby carriage into a crowded atrium. RoboCop, endowed with special sensing abilities, recognizes that the carriage holds not a baby, but a bomb. So he grabs the carriage and gives it a superhuman heave into the air. At the point the carriage leaves RoboCop's hands, it becomes a LightWave object. It flies up and up (in three shots), and finally explodes—a safe distance from the people below. RoboCop saves the day, and the Effects team not only ensures the safety of the crowd and building, but also saves the expense of working with miniature models.

In fact, no miniatures are used on the show at all; LightWave objects take the place of traditional models and puppets. One scene of the series' two-hour premiere shows RoboCop and detective Madigan leaving a crime scene. Although no police helicopter was scripted into this scene, the effects team created one in LightWave, flew it into the shot, and asked the producers, "What do you think?"

The 'copter was a "little lure," said Wilson, jokingly. "These people wondered 'How can stuff this compact and inexpensive [Amiga/Toaster] do this?' We proved it." In later shows, choppers were fully featured.

Sometimes the LightWave art consists not of objects in a scene, but rather the environment itself. That's the case with the image you see above and on this month's cover. Here Diana, played by actress Andrea Roth, is caught in a cyberspace web where bad-guy Chip Chayken has entrapped her in a viral cocoon. Before the cocoon hardens and suffocates her, RoboCop spikes in to upload an antivirus program that sweeps along the web just in time to dissolve the amber-like sarcophagus.

SYSTEM SPECIFICS

What hardware is behind this life-and-death landscape? The *RoboCop* effects department possesses "a dozen or more Amiga 4000s with Toasters. About half of them have WarpEngine [MacroSystem's accelerator]," says Wilson. Among other add-ons are GVP EGS boards, Expert Services' Picasso II cards, SpectraPaint software, and "the only Screamer in Canada."

"Shortly into production," says Executive Producer Stephen Downing, "Lee asked us if we would buy this incredible piece of computer equipment. It was not in our budget, but we [hoped] the added computer power would pay for itself. The outstanding work [the effects people] deliver is saving us production time and money."

WATCH OUT!

Because it's a syndicated show, *RoboCop* appears at different times and with different networks depending on where you are. Be sure to look for it in your television listings. And look for the LightWave effects, too. But if you can't tell which things are live and which are LightWave, don't worry—you'll just be paying the *RoboCop* visual-effects artists a compliment. ■

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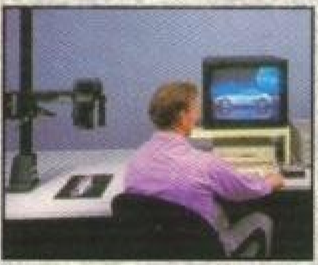

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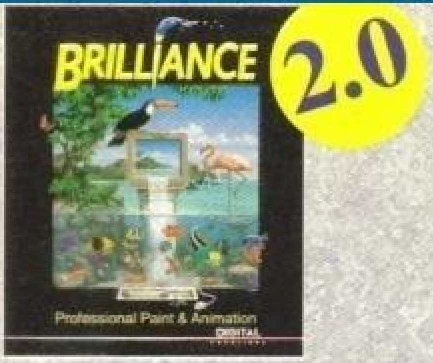

ANNOUNCING BRILLIANCE VERSION 2.0

Version 2.0 of Brilliance has been designed with productivity in mind. Several new features enhance this already powerful program. Features like *Flip Frames* that allows the animator to flip through drawings. *Rub Thru* that makes compositing easier. *Load and Save Tween paths* enabling much longer and repeatable brush moves. Faster and more accurate Tweening. *True View* option for magnification. And much, much more.

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Circle 16 on Reader Service card.

R E V I E

High-speed accelerator and SCSI-2 controller.

WARPENGINE

MacroSystem Development,
$895–1695.
A4000 (A3000 version)
3.0 compatible.
Hard-drive installable.

Not copy protected.
Accelerator compatible.
Minimum system: A4000.
Recommended system: Same as mininum.
Installation: Easy.

68040 accelerator for the A3000 and A4000.

4000 G-FORCE '040

Great Valley Products,
4MB, $1599; 16MB, $2499.
A3000/A4000.
2.0/3.0 compatible.
Hard-drive installable.

Not copy protected.
Accelerator compatible.
Minimum system: A3000 or A4000.
Recommended system: A4000.
Installation: Easy.

Great Valley Products and MacroSystem Development have recently released accelerators for the Amiga 4000. These boards speed up operation in two ways. First, they allow you to add 32-bit RAM directly to the accelerator board , which allows the RAM to operate up to 50% faster than it does on the A4000's motherboard. Second, they run at a clock speed of up to 40 MHz, almost doubling the stock 25-MHz rate. Taken together, these improvements allow the computer to run programs anywhere from one-and-a-half to three times faster than a standard machine.

WARPENGINE

The WarpEngine is a fast, well-designed combination accelerator/SCSI-2 controller, with a RAM-expansion capacity of 128MB. It's a single board that plugs into the CPU slot and comes in three configurations—28, 33, and 40 MHz. The 28-MHz version doesn't come with a processor. Instead, you remove the 68040 chip from the Amiga's processor board and plug it into the WarpEngine board. The other two versions come complete with either a 33-MHz or 40-MHz processor. You can start with the 28-MHz version, using your current 68040 chip, and upgrade to 40 MHz later on.

To locate the vendors of the products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 63.

The board's four SIMM sockets accept industry-standard 72-pin memory modules—the same type used on the A4000's motherboard. Just remove any existing memory modules from your motherboard, and plug them into the WarpEngine. You get all the benefits of fast accelerator memory without buying any additional RAM. By selecting a jumper that adds a wait state, you can even use your inexpensive 70 or 80ns SIMMs with the 40-MHz board.

In addition to the 4MB SIMMS, the WarpEngine accepts 8, 16, and 32MB modules. Using four 32MB SIMMs, you could end up with a total of 146MB on your A4000. If, for example, all four WarpEngine SIMM sockets are filled with 4MB modules and you buy a 16MB module, you simply remove one of the SIMMs from the WarpEngine, plug it back into the motherboard, and plug the new module into the WarpEngine. You don't need software to configure your memory, even if you mix SIMM sizes, although modules of differing sizes may appear as separate blocks of memory.

The WarpEngine's fast SCSI-2 controller comes with a standard 50-pin ribbon cable to connect with high-performance hard drives (such as the 2-gigabyte Barracuda) and other SCSI devices. The controller comes with auto-booting ROMs, as well as software for partitioning and formatting hard drives.

ENGINE INSTALLATION

Before you install the WarpEngine, move any memory modules from the A4000 motherboard to the ac-

W S

celerator board. I also had to clip the heat-sink/fan combination on top of the 68040 chip. In order to swap CPU boards, you must first remove the cover, the front faceplate, the floppy-drive bay, and the hard drive. I was able to install the WarpEngine in less than half an hour.

If you wish to add a SCSI drive or more memory after you've installed the WarpEngine, you'll need access to the SIMM sockets, the SCSI header, and the jumper pads, all of which are easily accessible. An included software disk uses the standard Commodore Installer program to copy SCSITools, the SCSI drive-partitioning software, to your hard drive, along with a utility called WarpROM for moving the Kickstart ROM to accelerator RAM.

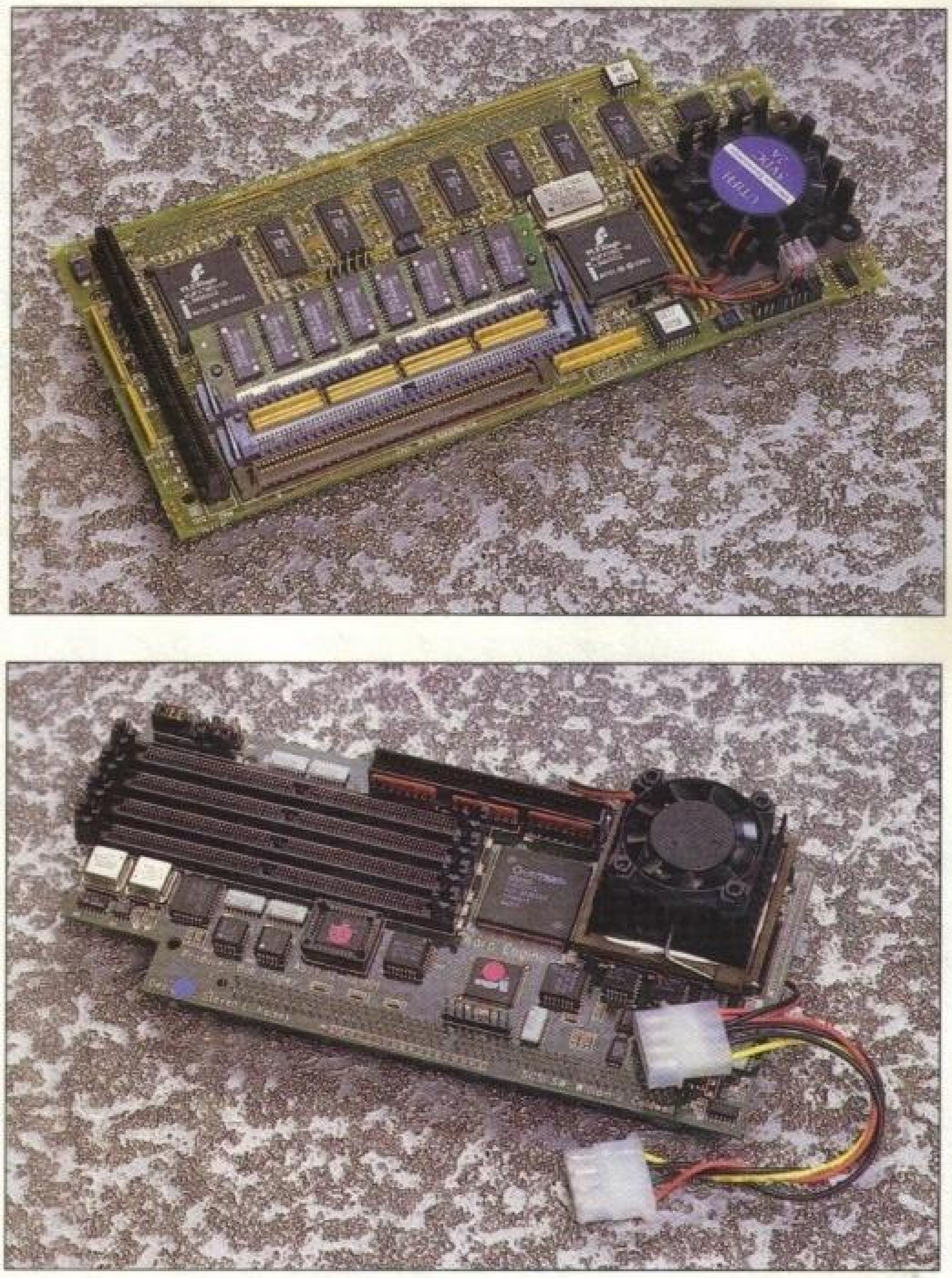
Although the Amiga 3000 has the same kind of processor socket as the A4000, the stock version of the WarpEngine will not work in an A3000 because of other differences. MacroSystem Development does, however, offer slightly modified versions of the board for the A3000 and A3000 Tower. The version for the latter has the same features as the A4000 version, but requires you to install a clip lead to one of the pins of the CIA chip during installation. The A3000 version uses two angled SIMM sockets, instead of four upright ones.

4000 G-FORCE '040

Despite its name, the standard 4000 G-Force '040 board works also with the A3000. Mine arrived with a 40-MHz 68040 processor and one 4MB SIMM installed. Two SIMM sockets accept either 4MB or 16MB SIMMs, but not one of each. If you buy the board with a 4MB SIMM and want to add a 16MB SIMM, you must remove the 4MB SIMM.

G-Force's memory requires the use of GVP's proprietary SIMM-32 modules. At current prices, the GVP 4MB SIMM is about 10% more expensive than the standard 72-pin version, and the 16MB version is about twice as expensive as a standard 72-pin 16MB SIMM. In fact, you could buy a 32MB SIMM for less than the 16MB GVP version.

The G-Force '040 board includes an expansion connector for a proposed RAM daughtercard and a DMA connector for a proposed SCSI-2 controller. GVP remains noncommital about when these options will become available. Due to the placement of the connectors, it may not be possible to use the expansion options if the board is plugged into an A3000.



Both GVP's 4000 G-Force '040 (top) and MacroSystem Development's Warp Engine (bottom) install easily and boost the performance of a stock A4000/'040 by up to 300%.

Installing the G-Force board is easy, as the heat-sink/fan and memory module come already mounted on the board. The otherwise-excellent manual states that both clock crystals on the A4000 motherboard must be marked 50 MHz, and if they aren't, the crystals (which are soldered in) must be replaced. On my motherboard, the crystal at U104 read 50 MHz, while the one at U154 was marked 28 MHz. GVP's technical support line was of no help in this matter, but a dealer told me that the information in the manual was a misprint, and that it was fine to use an A4000 with one 50 MHz and one 28 MHz crystal.

INSTALLED AND TESTING

The standard Installer program copied a memory-configuration program to my hard drive and added a line to my startup-sequence file. This line was added before the special instruction for the Emplant board, which must appear as the first line. I reversed the position of the two lines, and everything appeared to work without problems. GVP also includes software to move the Kickstart from ROM to accelerator RAM, but this program does not work unless you have added a memory module to the second socket (a fact noted in the ReadMe file on disk, but not in the manual).

Continued on p. 32.

DIMENSIONS

AHEAD OF OUR TIME

Amiga users are visionaries. We saw the future in Boing, and we followed that bouncing ball through many industry firsts in desktop 3-D graphics—and all the way to prime-time television.

Many of those who first saw the Amiga computer in 1985 could sum up their reaction in a single syllable: Boing! One of the first Amiga programs, Boing was an animation of a bouncing checkered ball that became a symbol of the Amiga. The lifelike, three-dimensional movement of the ball, complete with sound and shadows, showed how advanced the Amiga was in comparison to the Macintosh, with its tiny black-and-white screen, or the IBM PC, with its crude, four-color graphics. Even so, few people could have predicted that almost ten years later, the Amiga would still be on the cutting edge of realistic 3-D computer graphics and that Amiga-generated images would appear regularly on network TV.

FIRST STEPS

By the middle of 1986, envious programmers were scrambling to create copies of the Boing demo on the IBM, Macintosh, and the Commodore 64. Amiga programmers, however, were on to bigger challenges. In June of '86, a programmer named Roman Ormandy showed a video demonstration piece called We Built a City at the New York SIGGRAPH show. This short animation featured a fly-through of a detailed city ►

BY SHELDON LEEMON

ILLUSTRATION BY ERIK FLO

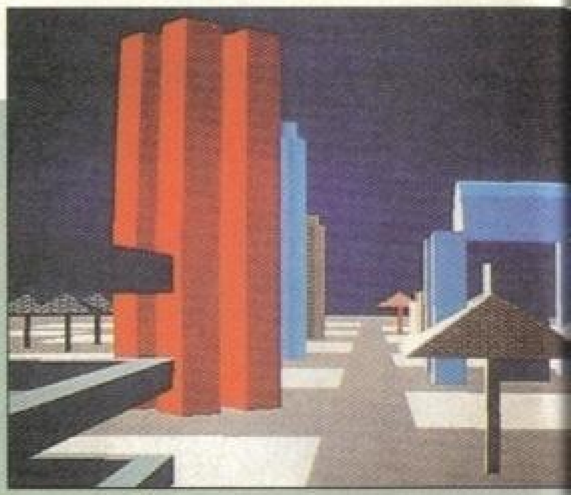
Boing!

1985 — Amiga introduced. Boing animation stirs the world's imagination.

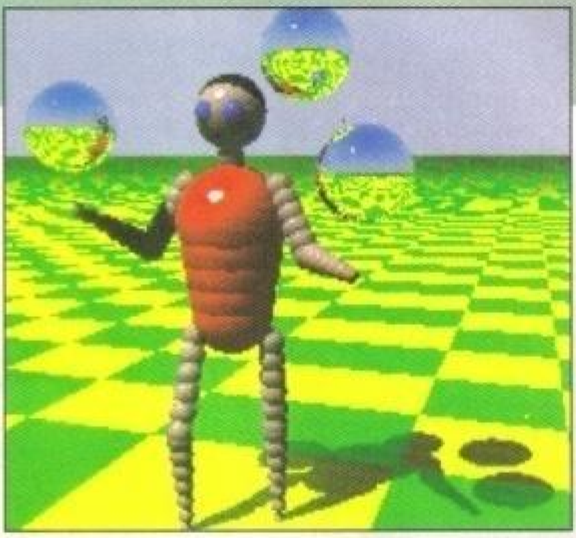
1986 — PC and Mac programmers scramble to copy Boing. Ormandy, Hastings, and Graham inspire the public with their experiments in 3-D software.

1987 — 3-D catches on big, thanks to release of the Amiga's first commercial 3-D software, which ranges from $79 to $200.

1988 — An aftermarket appears for Amiga 3-D, with products like Interchange and X-Specs 3D.



"We Built a City"



"The Juggler"

composed of basic geometric shapes such as cylinders, cubes, and tetrahedra (*AmigaWorld*, Jan/Feb '87, p. 24).

This video caused quite a stir at the time, not only because of the high quality of the animation, but because Ormandy had created it on a 512K Amiga 1000, using a program called Caligari (Octree Software). In those days, few people even considered trying to create such an animation on anything less than a $60,000 workstation.

Few people, that is, except for Amiga owners. At the second Amiga Developers Conference in November of '86, a young animation hobbyist named Allen Hastings showed a couple of short films he had created on the Amiga using his own software. Unlike Ormandy, who had used expensive, frame-accurate video equipment, Hastings used the single-frame setting on his 8mm movie camera to photograph, one at a time, the frames of animation that he created on his Amiga display screen. Although this process was laborious and time-consuming, the resulting films, which included a fly-through of a house, a Boing ball, and his trademark Porsche object, were impressive.

Hastings' efforts proved that an ordinary user could create realistic 3-D animations on an inexpensive Amiga computer.

Hastings' efforts proved that any ordinary user could create realistic 3-D animations on an inexpensive Amiga. They also attracted the attention of software developer Aegis, Inc., which persuaded Hastings to create a commercial version of his program, called VideoScape.

As impressive as these early efforts were, their impact was limited because few people saw the videotape or film. By the end of '86, however, Eric Graham had created The Juggler, an animation that stunned the Amiga community. It portrayed a humanoid character composed entirely of spheres, standing on a green and yellow checkerboard and juggling three mirrored balls. Part of the animation's appeal was that it used a technique called ray tracing to create perfect reflections of the scene in each of the moving, mirrored balls, and to cast a realistic shadow behind the figure of the juggler.

More importantly, however, The Juggler used an innovative technique to compress a series of 4096-color HAM-mode screens into a single animation file, showing it was possible to create high-color animations without expensive single-frame recording equipment. Amiga owners everywhere could run The Juggler on their own computers and show it off to all their friends. Word spread quickly, and The Juggler became the cover model for the May/June '87 issue of *AmigaWorld*.

FROM DREAMS TO SOFTWARE

Once the Amiga's animation capabilities had been proven, 3-D programs began to pop up everywhere. The year 1987 saw the debut of Aegis's VideoScape 3D ($200), Micro Magic's Forms in Flight ($79), Byte by Byte's Sculpt 3D ($99), and Hash Enterprises' Animator:Apprentice ($195). Each program had its merits, but none provided a complete solution. Some had a meager color palette, and some lacked a good object modeler. Some had limited animation capabilities, and others had a rough user interface. The ray-tracing programs were impressive, but terribly slow.

As crude as the early 3-D programs were by today's standards, users took to them enthusiastically and achieved astounding results. When the Bay Area Amiga users' group (BADGE) sponsored a Killer Demo contest in 1987, several entries were created with 3-D programs, including the runner-up, Kahnankas, a Sculpt animation. By and large, the creators of these animations were 3-D hobbyists with little or no professional computer-graphics experience.

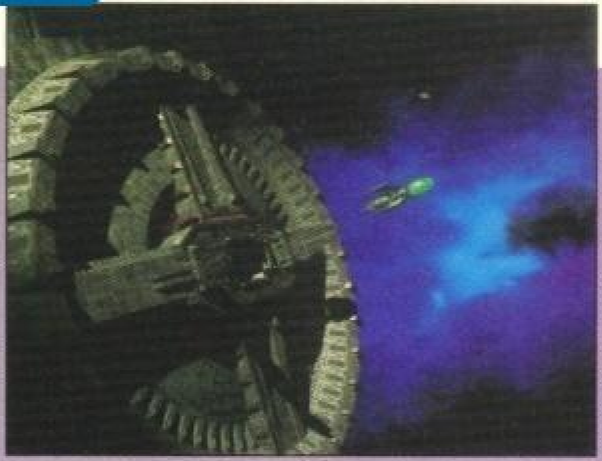
Three-dimensional animation became so popular that a market quickly developed for add-on products. These included Mimetics' 3-Demon, a modeler for

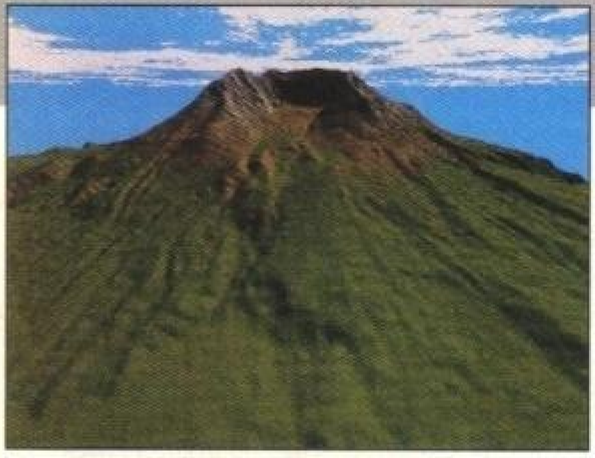
1989
Original 3-D programs substantially improved.
New programs appear, too, including Caligari
at an "outrageous" $2000; IBM and Mac 3-D
software goes for $8000 and up.

1990
A new generation of 3-D software is
released, including LightWave and
its revolutionary Video Toaster—
only on Amiga.

1991
Amiga 3-D animation airs on TV.
More affordable 3-D software finally
released for Mac and IBM.

1992
That hot new effect called morphing
shows up on the Amiga before it's
released for any other platform.


Babylon 5


Landscape Generation

VideoScape, and Syndesis' Interchange, which converted object files between Sculpt and VideoScape formats. Haitex's X-Specs 3-D glasses allowed users to create and view stereoscopic images with their 3-D programs, and Silver, yet another ray-tracing program from Impulse, entered the field in '88.

AMIGA ANIMATION MATURES

By 1989, Amiga animation programs had matured substantially. VideoScape went to version 2.0, Sculpt and Animate were combined into Sculpt-4D, and Silver became Turbo Silver. All three could create realistic animations in the 4096-color HAM mode, quite a feat when you consider that even today the fastest Mac and IBM computers cannot play back full-screen animations with thousands of colors at thirty frames per second. Sculpt and Turbo Silver included support for faster processors and math coprocessors. Sculpt-4D even added a driver for BCD and Lyon-Lamb single-frame controllers and for Mimetics' Frame Buffer, the first composite-display board for the Amiga capable of showing millions of colors.

As 3-D programs got more sophisticated, prices moved up a bit. Turbo Silver and VideoScape held the low-end line at $200, Animator:Apprentice went to $300, and Sculpt-4D upgraded its price to $500, making it the most expensive Amiga program in any category. Even this mark, however, was soon eclipsed by Caligari Professional, which made its long-awaited debut in 1989 at a price of $2000 and required an expensive IBM Targa card with a Bridgeboard.

Caligari's price might have been outrageous by Amiga standards, but it was a bargain compared to its PC counterparts. In the late '80s, only two or three 3-D animation packages were available for IBM computers, and they were priced in the $8000-$12,000 range (not including the cost of expensive AT computers and Targa display cards). These programs were aimed at such a narrow market that few PC owners even knew they existed, let alone dreamed of using them. And their command-driven interfaces were so complex that nobody but a full-time graphic artist could learn how to use them.

In the Amiga market, however, users continued to flock to 3-D programs in droves. By 1989, many BADGE Killer Demo contenders were 3-D animations, including the winner, Bradley Schenck's Sentinel. Some animations became so large that they would no longer fit on a floppy disk. The only way to get these large animations into the hands of users was videotape, so *AmigaWorld* held its first animation contest in 1989. The magazine received enough submissions to fill over an hour of tape, and, again, most came from hobbyists with no professional video or animation experience. Even so, the quality of these animations was surprisingly close to that achieved on television.

By 1989, Amiga programs could create animations in 4096 colors, while even today the fastest Macs and IBMs cannot play full-screen animations with thousands of colors at 30 frames per second.

THE NEXT GENERATION: READY FOR PRIME TIME

As the '90s began, the quality of Amiga animation programs moved up another big notch. Impulse's Turbo Silver became Imagine, and the company released the Firecracker, a 24-bit display card, to provide professional-quality output. New programs like 3D Professional (Progressive), Real 3D (RealSoft), and Adspec's Draw 4D (later Aladdin) appeared on the scene. By far the most significant development, however, was the long-awaited release of the Video Toaster in late 1990.

NewTek had already commissioned Allen Hastings to upgrade VideoScape to LightWave 3D for the Toaster. In a bold marketing move, the company decided to include LightWave with every Toaster package, rather than sell it separately. This meant that every copy of ►

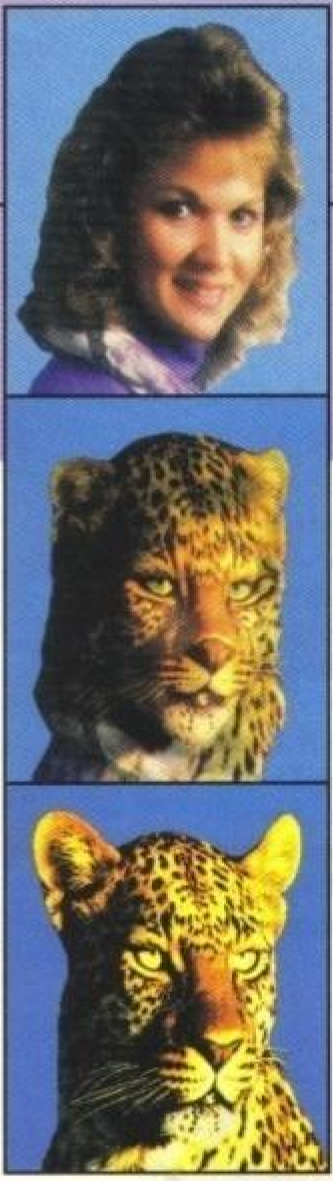
1993

Amiga animation becomes commonplace on network television and in movies.

1994

Further advances make it possible to produce high-quality Amiga 3-D animations quickly. Amiga software still the price leader.

seaQuest



Morphing

LightWave came with its own 24-bit color display device (the Toaster), and every Toaster owner had access to 3-D rendering and animation—at no additional cost.

LightWave and the Toaster soon proved that a $5000 Amiga system could effectively compete with the million-dollar systems used by the networks. By early 1991, Todd Rundgren had produced Change Myself, a music video—shown on MTV—that he created entirely with LightWave and the Video Toaster. Meanwhile, Joe Conti was using LightWave to produce special-effects sequences for the network show, Unsolved Mysteries, and Ron Thornton was working on outer-space sequences for the pilot of the syndicated show, *Babylon 5*. The leading Amiga animators, beginning to outgrow the *AmigaWorld* animation contest, started to move on to network television and feature films.

Meanwhile, in the IBM and Mac worlds, affordable 3-D animation systems were just starting to become a reality. About the same time that the Toaster was making its debut, Autodesk released 3D Studio, the first package to render 3-D images in 256 colors on an ordinary VGA-equipped PC, for only $2995 (almost two times the cost of the Toaster hardware and software). On the Mac, 3-D packages began to appear in the $1000 to $4000 price range. Of course, these prices didn't include the computer or the 24-bit display card necessary for outputting to video. In some cases, just the video card cost more than an entire Amiga computer system.

LightWave and the Toaster soon proved that a $5000 Amiga system could effectively compete with the million-dollar systems used by the networks.

The Amiga market, however, had already progressed to the point where shareware 3-D renderers like DKBTrace and QRT had begun to appear, and whole new categories of 3-D software began to open up. In 1991, *AmigaWorld* reviewed no fewer than five 3-D landscape generators that created realistic-looking scenery—Scenery Animator (Natural Graphics), Imagine Terrain module (Impulse), Digital Landscape (DigiScape), Vista, and Vista Pro (Virtual Reality Labs)—while the Mac and PC markets hadn't even conceived of this kind of software. Later, much the same thing happened with morphing software. Imagemaster's morphing programs (Black Belt), ASDG's Morph Plus, and GVP's CineMorph were out on the Amiga months before similar software appeared on either the Mac or PC.

TODAY AND TOMORROW

In the past couple of years, Amiga 3-D software has been used more and more widely to create animations for both television and feature films. Steven Spielberg's Amblin Imaging uses LightWave 3D to create all of the underwater sequences on *seaQuest:DSV*, seen Sundays on NBC. Foundation Imaging likewise uses LightWave for all the outer-space sequences of the syndicated series, *Babylon 5*. Amiga 3-D animation is also used to create special effects for the syndicated *RoboCop* series, and is seen on shows like the Emmy Awards and American Music Awards. It's even being used for national television advertising campaigns!

Recent developments have made the Amiga an even more attractive platform for 3-D animation work. ASDG/Elastic Reality's Exabyte tape driver makes it possible to transfer Amiga images directly to professional digital-video recorders without any loss of quality. NewTek's ScreamerNet software and the Raptor hardware (formerly called the Toaster Screamer) now enable you to make LightWave rendering ten times faster. The forthcoming release of the Toaster Flyer will make it even easier to create digital-video animations on the Amiga. As a result, the Amiga should gain even wider acceptance in professional video circles, where quality is valued above all else.

This does not mean, however, that the needs of those not yet involved in broadcast television have been overlooked. DPS's low-cost Personal Animation Recorder has eliminated the need for costly single-frame recorders, making broadcast-quality animation affordable for the average user. Imagine was just updated to version 3.0, at a list price of $695 (see review, p. 18, this issue). And NewTek recently announced that it will begin selling the LightWave software separately also for $695. Users who are interested only in animation can buy LightWave or Imagine and a PAR board for little more than they would spend on a Toaster system—and far less than they would pay for most frame-accurate videotape recorders.

While 3-D animation has steadily advanced on the Amiga, it has recently taken great leaps on the Mac and PC platforms. The display quality of these machines has finally caught up with, and even surpassed, that of the Amiga, as 24-bit color cards have become more common and less expensive. Meanwhile, drastic price reductions have at last brought the price of a Mac or PC system below that of a comparable Amiga system. However, the price of high-quality animation software on these platforms remains at the $1000-$2500 level, and these packages are likely to be cryptic and unfriendly. Consequently, few users other than graphics professionals can afford to get involved in 3-D on PCs or Macs.

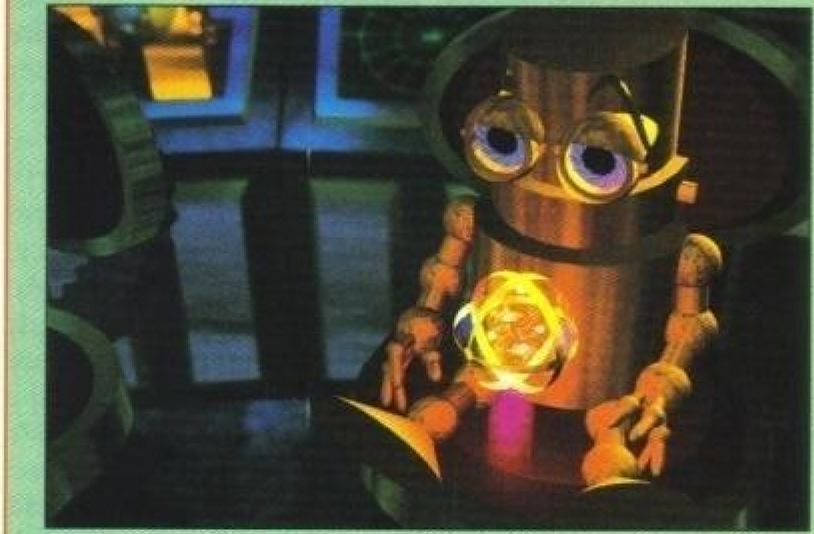
Despite the advances made by its competitors, your Amiga retains certain advantages in the field of 3-D as it enters its second decade. First, the Amiga continues to offer the best combination of professional results and reasonable costs. A beginning animator, starting with an A1200 system fitted with extra RAM and a math coprocessor, can create AGA animation of near-photographic quality for less than the cost of many of the software packages on the Mac or PC.

More importantly, however, the Amiga maintains a tradition of making 3-D accessible to the broadest possible base of users. It makes room for the hobbyist who is fascinated by 3-D and wishes to explore it further; for the graphic artist who wants to expand the frontier of 3-D special effects in network-television shows; and for everyone in between. Almost a decade after its introduction, the Amiga remains the one computer that allows you to go as far in the field of 3-D animation as your talent will take you. ■

The Amiga remains the one computer that allows you to go as far in the field of 3-D animation as your talent will take you.

AMIGA TAKES ONE VISIONARY TO THE EMMYS

When Dale Myers of Microtech Graphics and Animation in Livonia, Michigan, first bought an Amiga 2000 in 1989, he wasn't seeking to become a computer animator. "I needed a word processor for writing scripts," recalls Myers, who had a job in video production, "and the Amiga had the added bonus of great video games." But an *AmigaWorld* article chronicling video professionals who used the Amiga in their work convinced him to give it a try. Myers picked up a copy of DeluxePaint for 2-D animation and then added Sculpt-4D and Turbo Silver (later upgraded to Imagine) for 3-D work. As he became familiar with these programs, he began to sell 2-D and 3-D HAM animations as a sideline.



A dream became reality when Robo Jr (copyright Dale K. Myers, all rights reserved) won an Emmy.

The introduction of the Video Toaster in late 1990 accelerated his transformation into a 3-D artist. "I was looking for a way to upgrade the quality of my output at the time," he said, "and the Toaster fit right in with that plan." Myers bought a Video Toaster in March of 1991 and started to render to 3/4-inch tape. Within a year, he had honed his skills to the point where he was ready to try an ambitious project. He started to put together the story of Robo Jr, a mischievous young robot, in sketches and storyboards.

Myers worked part time on the project through the summer of 1992, and by late November he felt confident enough to start working on it full time. "From December of '92 to the following March, I laid out scenes all day and rendered all night, sometimes working 24-hour days," Myers said. By mid-1993, he had a six-minute animated short, of a quality equal to those produced by large studios. At 30 frames per second, those six minutes translated to more than 10,000 still frames, almost all of which were rendered on Myers' own Amiga 2000.

Myers took his animation to WDIV, the NBC affiliate in Detroit, hoping to have it shown on TV so that it might be nominated for a local Emmy. When the station's program director saw the work, however, he was so impressed that he decided to build a half-hour children's special around it. Myers, who had a professional radio background, volunteered to script and host the show, and "The World Premiere of Robo Jr" aired on Christmas Eve. Not only was the show nominated, but it went on to win four Emmy awards, three for the animation and one for composer Marty Liebman's original score.

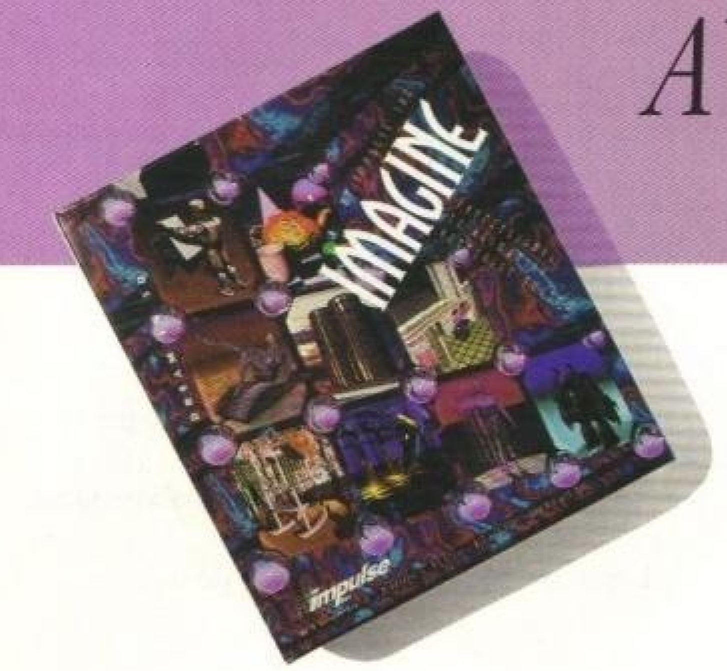
Robo Jr has also taken the top prize in a number of competitions for short films and animations. Most recently, it was awarded the prestigious Gold Camera, the highest honor at the 27th US International Film and Video Festival. Of the more than 1500 entries, all but a very few were sponsored by large corporations. Myers is quite certain that his entry was the only one produced by a single individual working out of his own home.

A lot of doors have opened for Dale Myers since he bought his first Amiga. After single-handedly producing his own award-winning short, he is now able to pitch his ideas to the top animation studios in the country. "I've always had an interest in story telling and animation. If it weren't for the Amiga," Myers observes, "I might be working a regular job and only dreaming about producing my own stories."

—SL □

AW Feature Review

By Steven Blaize



IMAGINE 3.0

IMAGINE 3.0
***Impulse,* $695**
All Amigas.
2.0/3.0 compatible.
Hard-drive installation required.
Not copy protected.
Accelerator recommended.
2MB RAM required.
Maximum affordable RAM recommended.

Many 3-D animators just got the best news in a couple of years: Imagine 3.0 is finally out, and it includes a long list of new features. Yes, now you get particle systems, more flexible morphing, skeletal control, freeform deformation, PostScript font support, spline editing, nearly 100 textures, and new documentation. All this and more, without much alteration to the interface Imagine users have become comfortable with since Turbo Silver's successor was first released nearly four years ago.

Let me get a few minor quibbles off my chest before we launch into this long-awaited, significantly enhanced upgrade. Impulse has always had a good reputation for products, but not for its documentation. Progress has been made here, although there's still a fair amount of room for improvement. Imagine comes with an informative, 352-page, spiral-bound manual that includes the required table of contents, index, glossary, examples, and reference materials. As a constant critic of Impulse manuals in the past, about the only criticism I can make of Imagine 3.0's is its lack of careful proofreading. There are significant numbers of typographical, grammatical, and technical errors—but this is still a major step forward.

Installation is simple and uses the standard Amiga installation program. There are versions for both floating-point-accelerated machines as well as older integer-only based Amigas. While working with an early copy of 3.0, I did experience a few installation problems—such as not copying all the last-minute text files to the hard drive and not including an icon to launch the program—but these could be easily corrected in versions shipping by the time you read this.

SOMETHING OLD, SOMETHING NEW

Enough of these minor infractions for now. Those familiar with previous versions of Imagine know this 3-D modeling and animation system is one program consisting of various modules, or editors, for creation and rendering. These editors are called Detail, Forms, Spline, Cycle, Stage, Action, and Project. The first three are for creating and modeling objects, the next three for setting up the animation movements, and the last for controlling the rendering of the final images and animations. (For reviews of the two previous versions of Imagine, 1.0 and 2.0, see Jun. '91, p. 15, and Mar. '92, p. 18, respectively.)

The one new editor, Spline, adds the ability to create and modify 2-D spline models for further extrusion, spinning, and even built-in beveling. This editor reads standard PostScript font files and accepts keyboard text input. Its interface and tools are similar to those available in the Detail and Forms editor. The spline models can then be extruded and beveled with controllable depth, width, and different styles. You must understand the objects are still saved and rendered as polygonal objects, not spline patches as handled in some other programs. This editor, however, adds more flexibility and enhances the quality of text and other curve-oriented models.

STRONG ON "DETAIL"

Speaking of modeling and curves brings up the first of many major enhancements to the Detail editor: freeform deformation. You can now create a deform object, with controllable detail, and use it to apply smooth, organic deformation to any object. If you are not familiar with this process, think of it as creating a thin wire cage surrounding your object. This flexible cage is then pushed, pulled, or otherwise shifted around, and the original object is then modified to fit within the molded cage. Previously, this type of modeling process for generating very natural 3-D objects has been available only on high-end systems.

Another major addition to Imagine is a feature called States, accessed also through the Detail editor. It allows

The long-awaited 3.0 version of Impulse's premier 3-D program sports significant enhancements and powerful new features.

RIALTO
NOW SHOWING
IMAGINE

you to save an object's current "state"—comprising attributes and geometry. Textures can then be tacked in place while the object is moved or morphed, thus permitting you to create realistic, natural-looking surface textures. Objects can be morphed from one state to another, allowing you to morph textures and positions easily without using the Cycle editor. In fact, the Cycle editor is still provided for backward compatibility only, and the use of States is recommended rather than trying to generate movement with cycles. As in the past, morphing animations can be done only with objects with the same number of points and faces. But States provides you with the extra flexibility of altering positions and/or textures, saving the new information state, and using the Action editor to transition between states—although you still cannot morph smoothly between objects that are image- or brush-mapped.

Another notable addition is Bones. Bones objects are created and modified in the Detail editor and used typically in conjunction with States. Bones provides skeletal-type control with realistic joint connection and movement. While admittedly not easy to implement, Bones objects add character-animation capabilities found previously only in spline-patch 3-D systems. Your base object first must be created as a seamless skin, and axes are then added at each joint position and grouped together in proper order. Faces are then selected, subgrouped, and identified as major or minor to a specific axis (joint). Once this work is done, you can move, rotate, or otherwise change the geometry and the object skin will stretch or compress appropriately. If a texture is applied and States used, you will see the texture stay in place and stretch as the object moves. The kinematic control thus provided produces excellent results (although not nearly as quickly as those produced by the more automatic inverse-kinematics features found in some other systems). With patience, however, you will find this feature well worth the wait.

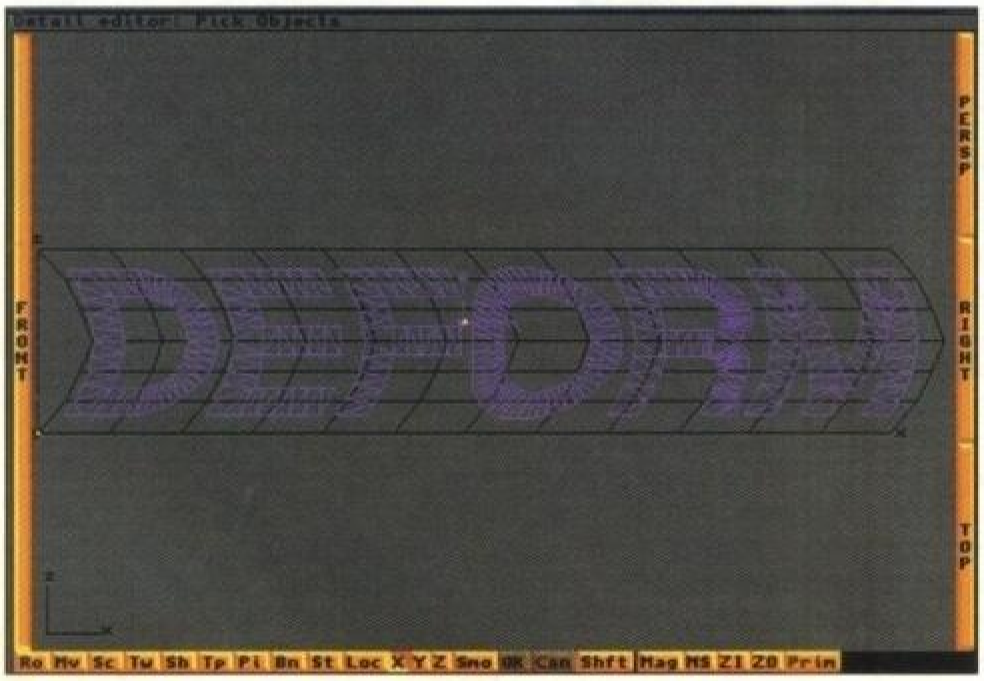
There are still other enhancements to the Detail editor that should make 3-D modelers very happy. First, you can now edit objects in the Perspective window, which now sports more responsive redraw abilities. Conform to Path has been added to the Conform to Sphere, or Cylinder, functions. Wave and Deformation tools have been included for wave creation and smooth deform bending, twisting, shearing, tapering, pinching, or stretching, respectively. ►

Appliqué—the ability to use a grayscale image to actually alter the surface geometry of an object—is also available. In addition, you can now transform any object into a particle object. The individual faces can be changed into particles of different shapes or even into a custom object. Such an object can be animated further as a particle system in the Stage and Action editors. Finally Imagine 3.0 also imports and exports industry-standard DXF object files, which will provide greater access to object libraries and expand the versatility of Imagine as a modeling system.

ADDED EFFECTS, NEW TEXTURES

The Forms editor, not significantly changed from the previous version, still provides excellent tools for creation of organic objects. You start with a simple sphere or cylinder divided into slices both vertically and horizontally. You can then use Forms' tools to mold this shape like a ball of clay. Objects thus created, like those created in the Spline editor, are then loaded into the Detail editor for attribute assignment.

While the interface and interaction between the Stage editor and Action editor has not changed much, there are new features well worthy of note. (The Stage editor is where objects, lights, and camera are positioned for animation. The Action editor is a timeline interface used to add special effects and morphing, and to alter keyframe data and other special information.)


Detail editor: Pick Objects
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Imagine's free-form deformation feature works by allowing you to "cage" whatever you wish to alter. You can then mold your objects using the intersection points of the lattice; the more points your cage has, the smoother the result will be.

As for the improvements within these editors, when objects are added to the scene, they are now placed on a "Layer," and such layers can then be selectively hidden or displayed. This is a great help for animating complex scenes. Lights have been improved with the addition of round or rectangular and point or parallel light beams. You can now also apply textures to lights, including French Window, Venetian Blind, Soft Edge, and Strobe.

The Action editor now sports four special-effects (F/X action) lines, up by two from version 2.0, allowing you to apply simultaneously to an object up to four different special effects (such as Tumble, Rotate, Ripple, Grow, Flash, Fireworks, Explode, Boing, and the new Particles). A line called Association has also been added that effectively replaces the Hinge feature. You identify an association with another object and the relationship remains constant throughout movements and rotations. New Global special effects have also been added, including Lens Flare and Global Haze.

One last major item deserving mention is the inclusion of almost 100 surface-attribute textures—up significantly from the 14 in version 2.0. These are all procedural and can produce some stunning results. A few of my favorites are Pebbled, WormVein, Wrinkle, Metal, Branches, Mosaic, and Fireball. These and the others have easily controllable parameters, allowing for simple creation of unique surfaces for your objects, and you can morph all of these by using object States.

THE FINAL WRAP

There is not enough room here to detail every new feature and enhancement contained in the program—and there are many. Despite the fact that I am very pleased to see this new version, I do feel, however, that many of the additions simply bring Imagine to the level of some of the other 3-D systems that have also undergone very impressive and aggressive development during the last year. Still, if you are a current Imagine owner and enjoy using its unique interface, you will find the $100 upgrade cost well worth the price.

I should also emphasize that many of these processes and effects do not come without a price to be paid in rendering time and memory requirements. Particle systems, for example, can be very memory intensive, while many of the special effects are quite time intensive. (One helpful factor here, however, is that while it is not documented in the manual, you can now use a display board other than Impulse's own Firecracker—Centaur's OpalVision board can be selected through the Prefereces editor.) Additionally, small annoyances to long-time Imagine users still linger, like remembering to press Enter before hitting OK or Apply, or the fact that Backdrop pictures can only be identical to render size, or that there is still no way to insert frames into the middle of a constructed animation (although now you can copy and paste timeline groups in the Action editor).

Overall, however, this is a significant upgrade to a major Amiga 3-D program. And I applaud Impulse for instituting a new policy of continual updates for one year for a $100 fee. The company hopes this will more quickly stimulate further program development through a more intensive use of the program and increased feedback from users. So keep those comments coming, and we can all look forward to even more powerful versions of Imagine in the future. *(Watch for a hands-on tutorial on using some of Imagine 3.0's new features in the next issue.)* ■

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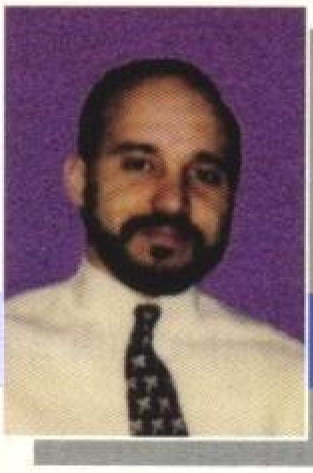


Video in Focus

PRACTICAL ADVICE FOR AMIGA VIDEO PRODUCERS

By Paulo de Andrade

Maintenance for everyone: VTR cleaning

Videotape is nothing but plastic coated with magnetic particles. Spinning at several thousand revolutions per second, your VTR's video heads (not surprisingly) generate enough friction to scrub these particles away. These missing pieces show up as dropout. They stick to your VTR's video heads and tape path, too, creating a barrier between the tape and the heads and preventing the full signal from getting through. Dust is probably an even worse enemy: A simple speck falling between the video heads and tape causes dropout immediately.

CLEAN 'EM UP!

Are you worried about the well-being of your VTRs by now? You should be! Dirty tape paths not only cause picture degradation, but also accelerate the wear on your machines. Keeping your VTRs clean is a simple task that can save you maintenance costs. Here's what you'll need to do it:

- The proper screwdriver or tool to remove the cover.
- A compressed air can (for dusting).
- Special head-cleaning fluid. (Alcohol and other liquids should not be used; they can leave residues and damage your heads beyond repair.)
- Chamois-tipped swabs for cleaning video heads. (No other type should be used. Cotton swabs are fine for cleaning audio-deck heads, but can seriously damage VTR heads.)

Before you take the next step, unplug your VTR fom the power outlet to avoid the risk of electric shock. You may also need to unplug some or all the cables. (It is a good idea, at this point, to mark the cables. An easy method is to tag each one with a self-sticking address label that bears the name of the connector it belongs to—video in, left audio out, etc. Doing so will make reconnection easier.)

Warning:

If your equipment is under warranty, opening the case may void it. Also, failure to take extreme care in executing these procedures may cause serious damage to your equipment. When in doubt, hire a professional. *AW* is not responsible for any damage caused when following these instructions.

If your VTR's exterior is very dusty, spray it with the compressed air before removing the lid. You will immediately notice a metallic drum—the rotating head drum. *Do not touch anything* at this point. And, because acids and oils on your skin can damage delicate parts, be wary of touching things inside the unit at any time with your bare fingers.

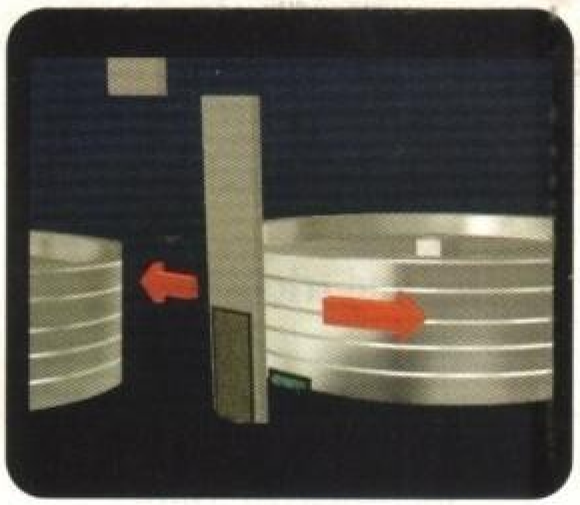
Using the compressed air, blow the first dust layer off the inside of your VTR. (Point the nozzle at every area, but be careful not to shake or tilt the can too much; these motions can cause liquid to leak from the can.) Pay special attention to the tape path, as this is where the dust does the most damage. You are finished when you don't see any more dust being blown out.

VERY CAREFULLY . . .

Prepare to clean the tape path by moistening a new chamois swab with plenty of cleaning fluid. Then secure the drum by placing your fingers on the top rim of the rotating head drum. (Do *not* touch the drum's vertical surface with your fingers!) The video heads (see illustration) are the small, dark rectangles you see between the rotating drum and the lower, stationary drum (there may be 2 to 10, depending on your VTR). Be very careful: Video heads are easily damaged. Place the swab with its tip parallel to the first video head and stroke it gently, using straight, horizontal motions. Do not move the swab vertically or in circles. Remoisten the swab and repeat the cleaning for each video head. As you rotate the drum, be sure to clean its outside (vertical) surface completely, using the same horizontal motion. Clean the lower drum tape path, as well, in the same way.

The audio and video heads look like metallic rectangular blocks standing vertically. Use the same swab and fluid to clean them, again using gentle strokes. Then moisten the swab with cleaning fluid and wipe it gently against all metallic guides and rollers along the tape path.

Use a new swab to clean the final piece— the cylindrical black rubber pinch roller. If you can find one of the special rubber cleaning/conditioning liquids designed especially for pinch rollers, use it. If not, use any head-cleaning fluid that is is safe for rubber (read the label). Drag the moistened swab over the roller in vertical strokes, making sure you clean the whole exterior.



Clean the video heads using only mild pressure and horizontal strokes.

Now give your VTR a final blast with the compressed air, this time concentrating on the tape path and the video heads and drum.

Close up your VTR and wait a few minutes for any leftover fluid to dry. Then reconnect all the cables and plug the unit back into the power outlet. Finally, pop in a familiar videotape. You'll be amazed by the clean, crisp picture! ■

Write to Paulo c/o ***Amiga-World*** *Editorial, 80 Elm St., Peterborough, NH 03458.*

ACCENT
ON
GRAPHICS

Animated Image Processing

67

◆

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

◆

By Joel Hagen

IMAGE PROCESSING IS one of the more interesting facets of computer graphics. The computer becomes your collaborator in changing an existing image according to a set of rules you can control. You may alter the image by simply changing values of each of its pixels, or by first examining each pixel's neighbors to determine a rule to apply, or by examining the pixels of other images to determine a rule of change.

Image processing evolved in the scientific community as a means to enhance the visual information in medical and space images, but the techniques involved are now familiar to artists as well. By applying image processing to an animation or by animating an image process on a still picture, new dimensions can be brought to these techniques. This month's column will explore such methods using three major Amiga programs.

ADD A LITTLE MOTION

As anyone knows who has worked with Art Department Pro (Elastic Reality, formerly ASDG), ImageFX (GVP), or Imagemaster (Black Belt), image-processing options are far wider than simple blurring or edge detection. To suggest a line of exploration, I have chosen one exotic "canned" process from each of these three programs, and also added one of my own that involves several processing operations. The accompanying illustration shows the results of each of these on the inset image.

Bear in mind that these are effects applied to animations. You will discover that motion can add tremendously to the "readability" of an effect. As an analogy, imagine a still photo of a pheasant against a complex background of grass and bushes compared with film of that bird walking against the same background. Motion allows us to more easily distinguish an object from its background. The same principle applies to heavily processed images. An effect that might render a still image unreadable may be very interesting in motion.

A good example is the "3-D Net" effect in the upper left of the illustration. This is an Imagemaster button located in the Effects section of the Process panel. On a single image, this often yields a muddled picture in which the content is hard to discern. Motion helps a lot. You can digitize a number of frames from a video source, or use a sequence of hand-drawn animation frames, then apply the Net effect to each frame. In motion, the result can be haunting. This is a great candidate for a readout screen in a science-fiction animation. You must exercise judgement in selecting source pictures. A face that fills the screen is excellent, as is a moving figure against a simple background.

Imagemaster's 3-D Net effect has a number of interesting controls that allow you to change the size of the mesh and vary the extent to which it overlays the original image. The example in the illustration shows a Net Spacing of 3, an Effect setting of 100%, Blackline on, and Overlay off. A Negative effect was applied to the processed image to change the apparent convexity of the net.

The lower-right part of the illustration shows a "glass distortion" effect from ImageFX. Here, the face is loaded into the alpha channel (see Accent #64, Jun. '94, p. 60, for more on the alpha channel) and used to affect a main screen image. To create the animation, either the alpha channel, the main screen, or both can process sequences of images. Be sure to scale all images to the same size before processing. The image or sequence of images you intend for the alpha channel must be in grayscale. Load the screen image first, then load the appropriate image to the alpha channel. Select Distort from the Effect panel and set Amount to around 200 for an intense result. You may find that a soft, unfocused foreground like the one in the illustration lets the alpha images show through most clearly, but try complex foreground scenes as well. A ghost effect can be achieved with a moving character in the alpha channel interacting with characters on the main screen. Bold titles in the alpha channel with edges highlighted and shadowed

Applying image-processing techniques to animation can add striking effects and bring a whole new dimension to your work.

create sophisticated glass effects on well-chosen foregrounds.

LABOR-SAVING OPERATIONS

This is a good opportunity to try batch processing your images. The Hook button in the ImageFX Toolbox lets you select IMP, the included Multi Processor. Instead of manually loading each image, you can set up a series of instructions for loading, processing, and saving them automatically. This utility is a well-designed labor saver. See the manual's appendix for details.

While on the subject of batch processing, the ADPro "woodcut" effect at the lower left is an example of an operation that really benefits from automation. Ten different operations are required for each frame of the finished animation. While ADPro includes the FRED utility for batch processing, I used one of the company's ancillary products, Pro Control, for this project. Within about five minutes of glancing through the manual and fiddling with the program, I was cranking out the results I was after. Screen buttons build a script for you that executes complex sequences of operations and saves either a series of images or an ANIM.

The woodcut effect I devised consists of the following sequence:

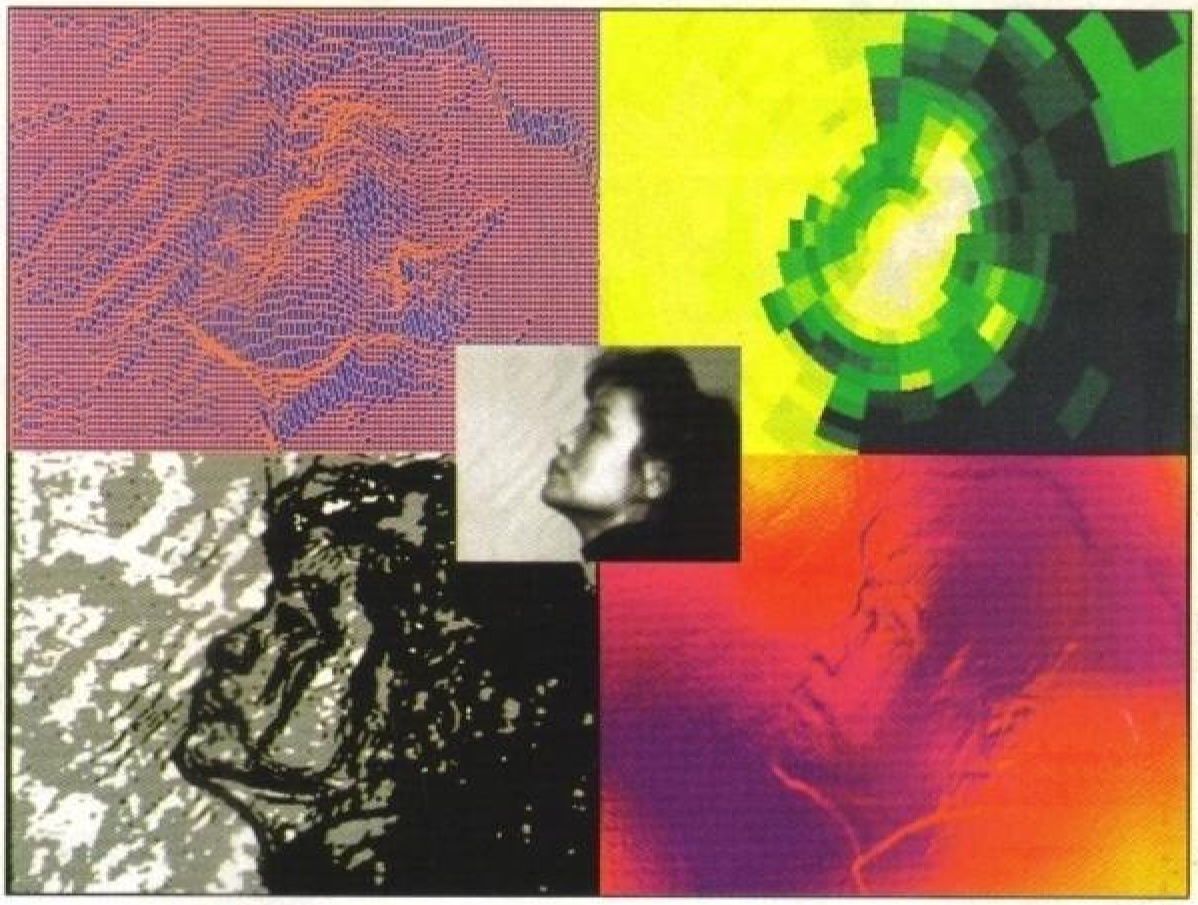
1. load an image
2. scale to 320x200
3. blur
4. line art operator
5. scale 200%
6. histogram equalize
7. blur
8. solarize
9. reduce image to four color
10. invoke the ANIM saver

I was amazed as I watched Pro Control rip through this complex task in a fraction of the time it would have taken manually.

I also used Pro Control with ADPro on the Polar Mosaic effect in the upper right. This is a fascinating variation on more familiar rectangular mosaics. Up close, these bullseye images are often unrecognizable, but from a distance they snap into focus. The variation I explored in this case was to use a single image of the face and animate the extent of the mosaic effect. Pro Control allows you to load an image and set a number of iterations over which an effect will occur. Thus, in the control panel for the Polar Mosaic Operator, you could enter something like 5d2 in the Tracks and Slices fields. This would begin the animation with five concentric tracks and slices and add two more with each new frame (d representing delta, or change).

Of course, you can do this with a sequence as well as with a still image. The opportunities this opens up are wonderful. Any operator with a value entry can be controlled this way. Polar Mosaic makes excellent alien screens for science-fiction animations. It has a novel look, especially in motion. Your best mosaic results will be from images with a face or object that fills most of the screen. Small details are lost.

The temptation with image processing is to use digitized sequences from video sources. As a matter of fact, hand-drawn sequences are excellent source material, and in many cases can give you greater control over end results. An animated character lacking refined detail may be uninteresting in its preprocessed state, but it can take on eerie life as an animated 3-D net or glass distortion. Next time an animation contest comes around, experiment with animated image processing for a new and different look. ■



ADPro, ImageFX, and Imagemaster were used to create the four illustrated effects from the inset image. These are examples of animated image-processing effects that make use of batch processing.

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

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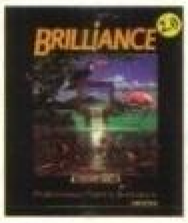

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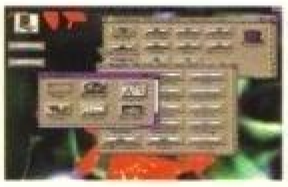

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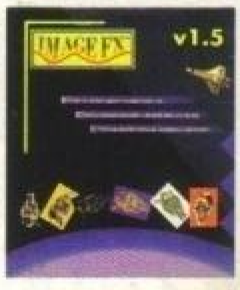

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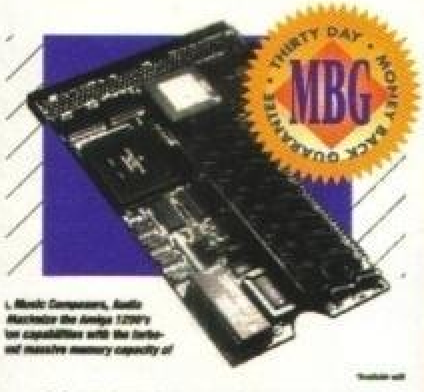
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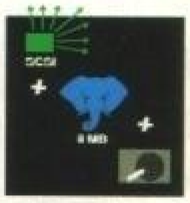

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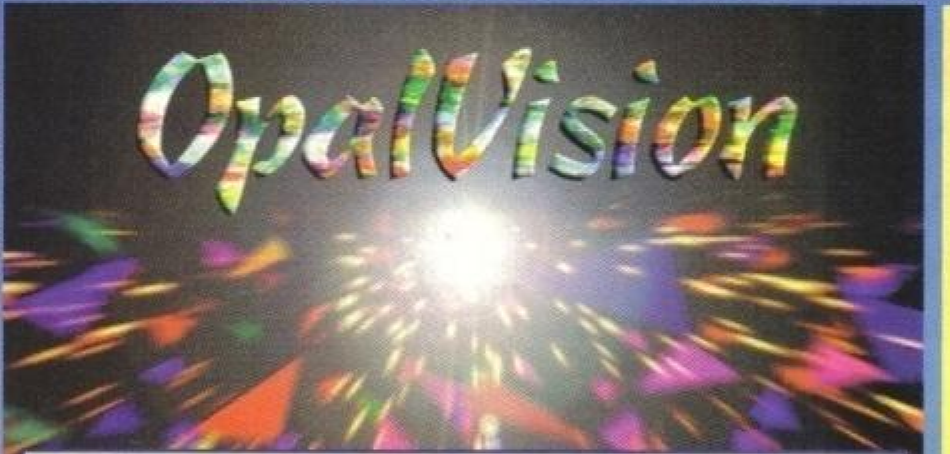
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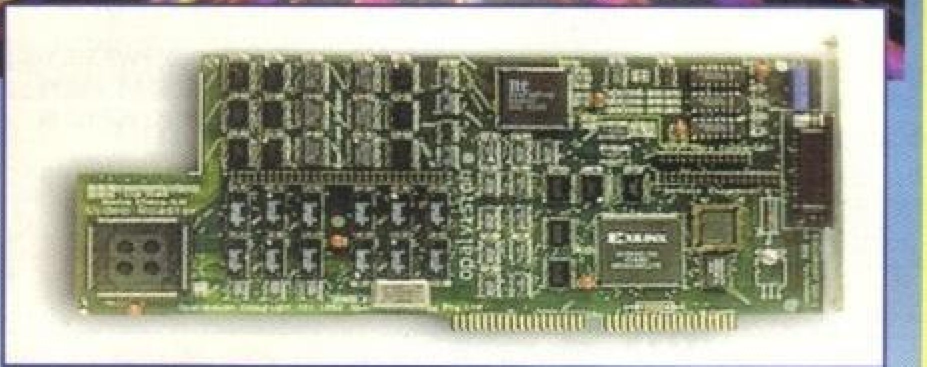

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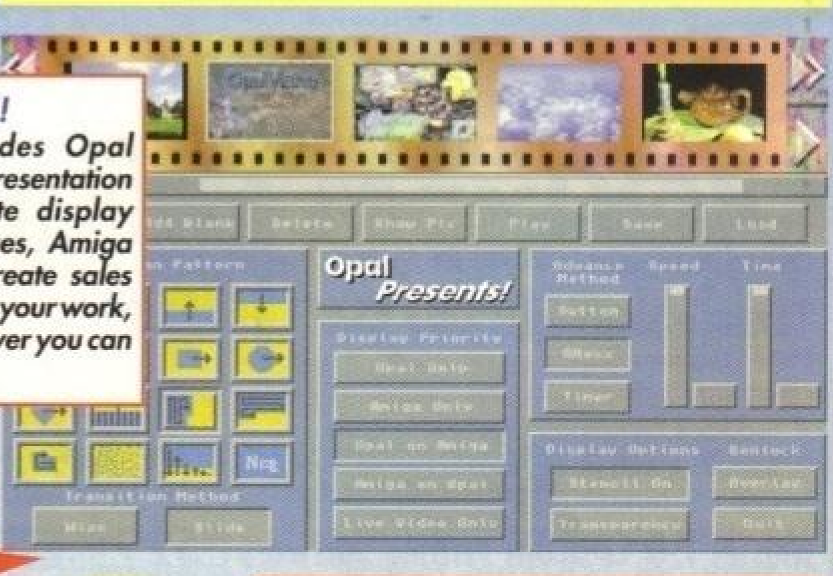
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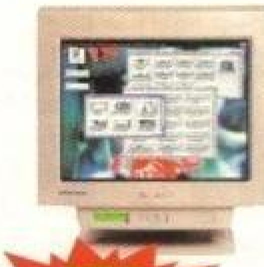

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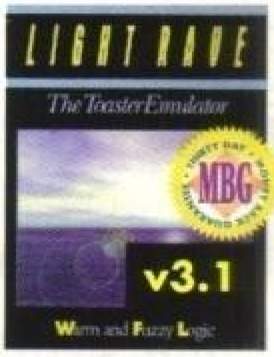

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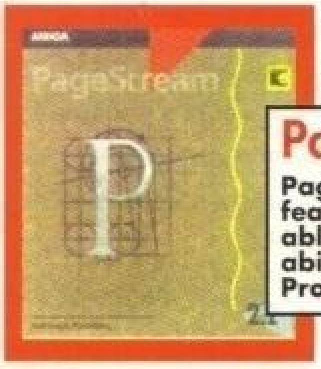

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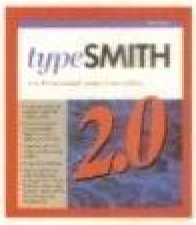

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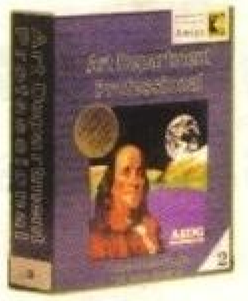

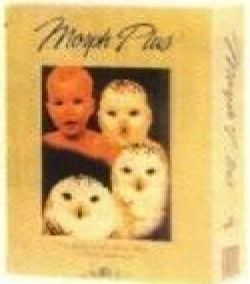

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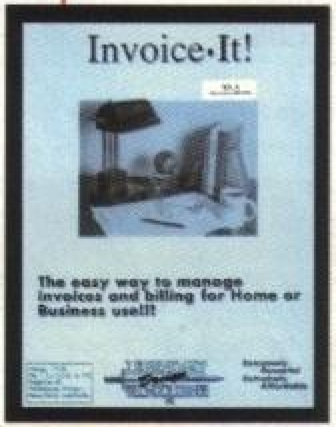
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From p. 11.

REAL-WORLD COMPARISONS

Popular performance benchmark programs such as SysInfo and AIBB showed that an Amiga 4000/'040 equipped with one of these boards was consistently one-and-a-half to three times faster than stock. Some tests showed the WarpEngine board to be slightly faster; on others, the G-Force had the advantage.

I performed a number of test renders using LightWave 3D 3.1 with both boards. The results of these tests are summarized in Table 1. Although the degree of speed increase varies depending on the type of picture being rendered, it is always substantial. In the case of the complex scene, the 40-MHz boards rendered it in a little over half the time it took with the A4000/'040.

While their performances were close, the G-Force board was a little slower rendering the complex scene, due to its use of some of the slower system memory. Surprisingly, the WarpEngine was seemingly not hampered by a mix of 70 and 80ns SIMMs (instead of the fast 60ns SIMMs) from the A4000 motherboard.

When used with Utilities Unlimited's Emplant board, Mac speed tests showed the emulator running on the Amiga to be faster than Apple's fastest stock Quadras. They also improved tasks such as playing sound files in the background and displaying QuickTime movies.

Table 1

	4000/'040	Warp (80ns RAM)	Warp (60ns RAM)	GVP
Texture-map scene	0:02:46	0:01:08	0:01:02	0:01:05
Simple render	0:07:48	0:05:53	0:05:32	0:05:44
Complex render	1:42:06	0:55:41	0:54:53	0:57:52

Notes 1. The texture-map scene uses the texture-map example file included with LightWave. Simple render uses an apple object, two lights, and ray-traced shadows. The complex render scene has 25 objects, 8000 polygons, and heavy use of texture maps, with ray-traced shadows and medium antialiasing.

SYSINFO
SYSINFO

A keen eye reveals that the Warp Engine (bottom) slightly outperforms the G-Force in SysInfo tests.

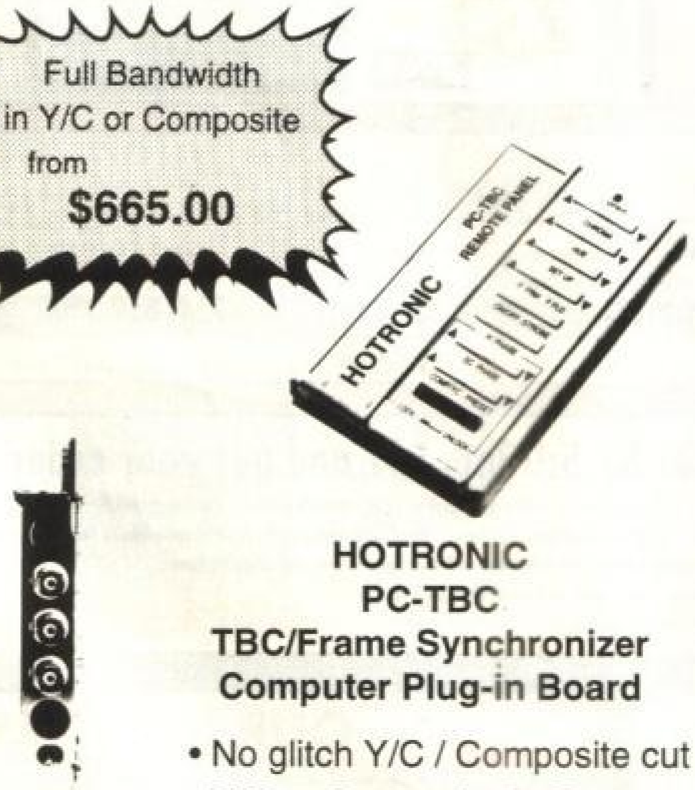
The WarpEngine's SCSI-2 controller worked fine with the fast 2GB Barracuda hard drive and a NEC CD-ROM, using the ASIM CD-ROM file system. Using the Diskspeed program, I clocked sustained reads of about eight-and-a-half megabytes per second, using a 256K buffer. That's fast enough to display full-quality compressed video right from the hard drive.

CONCLUSION

You can buy a bare WarpEngine board for less than $900. Besides adding a fast SCSI-2 controller, simply transplanting the RAM and processor you already have will increase the A4000's capacity and processing speed. You can invest in a faster processor and more RAM as your finances permit.

I cannot give the G-Force an enthusiastic recommendation, at least not to Amiga 4000 owners. It operates every bit as quickly as the 40-MHz WarpEngine board, but it offers no SCSI-2 controller (at least for now), and limited memory-upgrade options when compared to the WarpEngine. At current prices, the GVP board with 4MB of RAM is about a hundred dollars less than the bare-bones, SCSI-2-equipped, 40-MHz WarpEngine with no RAM.

Continued on p. 36.



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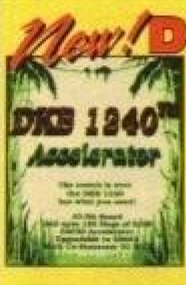

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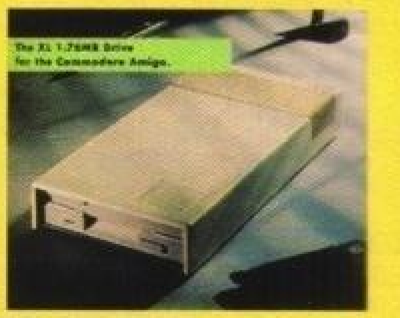

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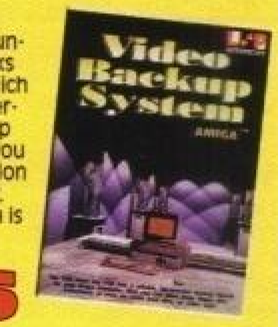

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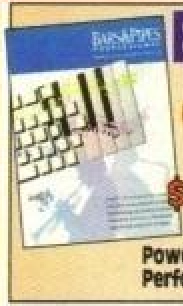

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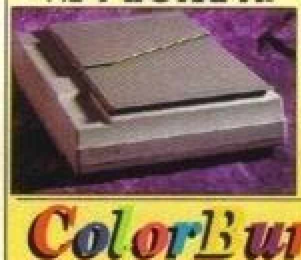

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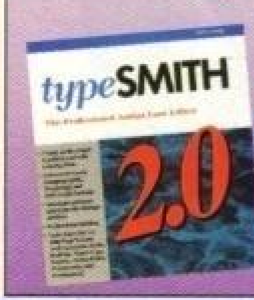

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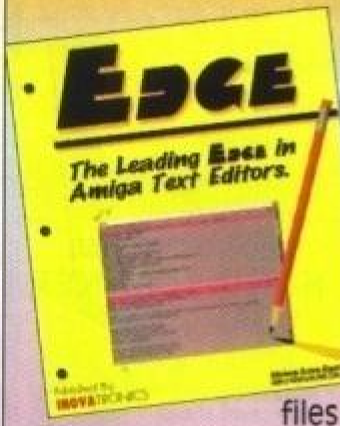

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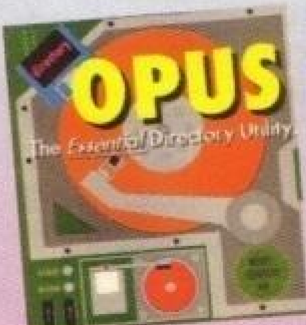

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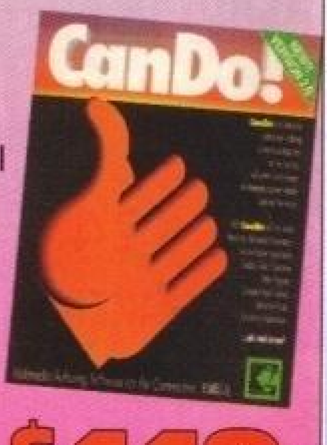

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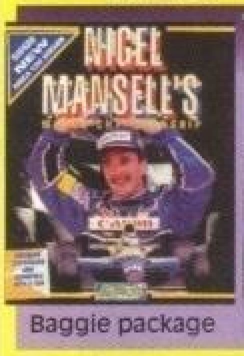

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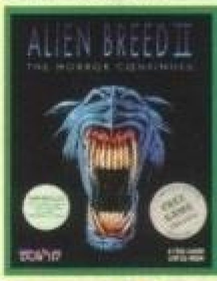

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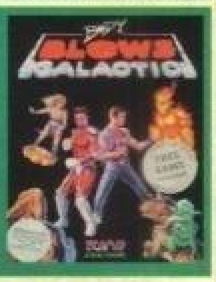

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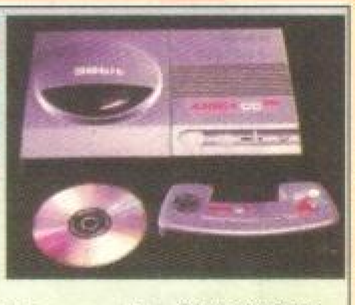

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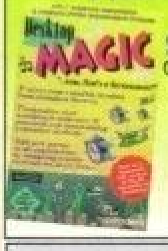

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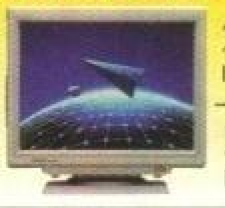

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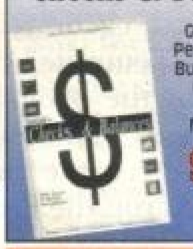

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Circle 12 on Reader Service card.

From p. 32.

Amiga 3000 owners, however, should consider the G-Force board. Those computers already have a SCSI adapter, and the G-Force board doesn't have to be modified to fit. Given those circumstances, the added 4MB of accelerator memory and slightly lower price clearly tip the balance in favor of the G-Force.

—Sheldon Leemon

MIGRAPH MS2400 COLOR SCANNER

***Migraph*, $1399 (MS1200, $1099)**

All Amigas equipped with a SCSI port.
1.3/2.0/3.0 compatible.
Hard-drive installable.
Not copy protected.
***Minimum system:* 68020 or faster accelerator, 4MB, hard disk, SCSI controller.**
***Recommended system:* 68030 or 68040, as much RAM and hard-disk space as your budget allows.**
***Installation:* easy.**

2400-dpi, 24-bit color flatbed scanner.

For about $1400, you can turn your Amiga into a 2400-dpi, 24-bit color scanning workhorse with Migraph's MS2400 flatbed scanner. For about $300 less, you can opt for 1200-dpi results with its MS1200. This review discusses only the MS2400, which consists of a 2400-dpi scanner, a SCSI cable, and the ColorKit Pro and OCR software.

PREPARATIONS

Setting up the scanner is fairly easy. Unlike large flatbed scanners of former days, the MS2400's footprint is small—about the same as that of a medium-sized laser printer. There are no external moving parts, so I merely created a small clearing among the books, manuals, and disks piled high on a table next to my desk.

Connecting the scanner requires your Amiga to have a SCSI port. I located and installed a GVP 4008 SCSI controller in my A4000 for just that purpose. Other than lengthening the power-up time by 15 seconds, the card proved a nice complement to the MS2400. There's nothing particularly complicated about the setup procedure: You assign the scanner its own unique SCSI ID number (the default value is 5), plug in the 50-pin-to-25-pin SCSI cable, and then power up the scanner and computer. Should you need to change the SCSI ID number, a bank of DIP switches beneath the scanner makes it easy.

COLORKIT PRO

Included with the scanner is the previously mentioned ColorKit Pro software. If you're using AmigaDOS 2.0 or later, the program uses ASL file requesters, but automatically installs its own custom file requesters on the systems of 1.3 holdouts. Provided the SCSI connections are complete, your Amiga recognizes the scanner as another device on the chain.

Once installed and executed, ColorKit Pro places five icons at the bottom of the screen. These include Scan Settings, Scan, Display, Save, and Info/Options. Their names and functions are self-explanatory—you use Scan Settings to access the scanner's settings and controls, Scan to perform the scan, and so on. Your first chore is to calibrate the scanner using an included grayscale calibration strip. Doing so provides an excellent lesson in the proper placement of images on the scanner and makes you familiar with the art of flatbed scanning.

The Scan Settings option is where you'll spend the most time when using the MS2400. A requester appears when you select this option, offering you a myriad of ways to adjust the scanner's settings. For instance, you can select color modes, aspect ratios, and the x and y dpi settings—and fine-tune each of them for best results. The software allows you to scan in any size of image that the scanner will hold.

A "Prescan" feature produces on the screen a thumbnail of the image before you are committed to the full-blown scanning process. Both grayscale and line-art modes are also available for fast-scanning purposes. A tutorial in the well-written manual guides you through each aspect of ColorKit Pro, with plenty of encouragement to practice on your own.

One of the most interesting features of this software is its relatively transparent hard-disk memory-cache feature. I say relatively because it's plain that there's a serious amount of hard-disk activity as the scanning proceeds. The hard-disk cache feature creates a file called "Tempfile" that's deleted when you exit the program. If your system crashes or you reboot with a scan in ColorKit Pro, the file is deleted the next time you run the program.

IF YOU'VE GOT THE TIME . . .

Two factors determine the time the MS2400 needs to complete a scan: the resolution and the size of the image you're scanning. ColorKit Pro software seems slower than RAM-based scanning drivers such as the JXScan driver found in Art Department Professional, but most users would no doubt prefer to wait an extra minute or two rather than spend $1000 or more for RAM.

The MS2400 scans all the way up to 2400 dpi—a tremendous improvement in technology over earlier scanners that struggled to reach 300 dpi. The quality, however, is not eight times better. You can output only in 24-bit TIFF or IFF-24 files. I also strongly recommend an image-processing program, such as ADPro, as a supplement to ColorKit Pro, along with a fast Amiga, such as an A4000/040 with a large hard drive. When I was midway through this review, Migraph sent me version 1.7 of ColorKit Pro, which supports Expert Services' Picasso II 24-bit display adapter. The software works in the same way as the first version, but has new display-requester options for the Picasso.

Migraph's MS2400 scans at 2400 dpi.

Migraph's OCR (Optical Character Recognition) software accompanies the MS2400 for scanning text. Familiar to users of the company's previously released ColorBurst hand scanner, OCR lets you use the MS2400 to quickly convert large amounts of printed material into computer-readable text.

SCANNING FOR A CONCLUSION

The only scanning system we've used to create many of the images that have appeared in *AmigaWorld* over the years has been a time-worn A3000 stuffed with over 82MB of RAM, a Firecracker 24 frame-buffer, a large Sharp JX color scanner, and ADPro. How does the MS2400 with ColorKit Pro compare? It is much slower, and, without a full-featured, integrated image-processing program like ADPro to control it, there are a few extra steps involved in each scan. The quality, however, is better with dark images, the resolution is higher, ►

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and the cost is only a fraction of what we paid to piece together the older equipment. Take my advice—get an MS2400. You won't be disappointed.

—Tim Walsh

CROUTON TOOLS

DevWare, $149.95

All Toaster-equipped Amigas.
2.0/3.0 compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.
***Minimum system:* Video Toaster-equipped Amiga.**
***Recommended system:* Same as minimum.**

Utility programs for the Video Toaster.

If switching between the Toaster, image-processing, music, and edit-control programs is becoming tiresome, you might be interested in Crouton Tools. Billed as a "video operating system," it works so as to integrate all the functions of your various Toaster-related programs.

TRIPLE CROUTONS

Crouton Tools has three main sections: Tools, Logger, and Utility and Program. The Tools section is divided into three screens: Images, for controlling image-processing programs; Audio, for controlling sound and music programs; and VTR, for your videotape recorders. Each of these screens also contains a full set of Toaster controls.

Tools performs functions from a single screen that eliminates flipping from Toaster to Workbench screens. Also, a single button replaces a series of actions. For example, the Images screen has a button that links ADPro with ToasterPaint, allowing you to save ToasterPaint images as JPEG files. All three Tools screens let you perform any of a long list of functions: for example, grabbing video frames for transfer directly into ADPro by using an icon on the Toaster effects screen, or via the GPI trigger, or with a joystick button.

Complementing the main buttons on the Images, Audio, and VTR screens are configurable button bars for access to other programs. For example, while on the Images screen, you can open Audio and AmiLink tool bars. The buttons on these tool bars allow you to load song files into SunRize Industries' Studio16 and play them, or to control your tape decks. By displaying the appropriate button bars, you can access the major functions of your image-processing, audio-production, and edit-control programs, as well as the Video Toaster. Registered users also receive an update disk with tools to control several 3-D programs.

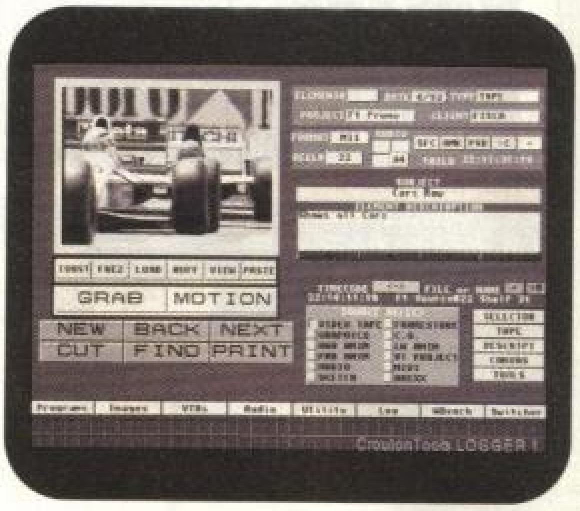
LOGGING ON

Crouton Tools' Logger section helps you organize all of the various elements you use in video production. You can keep track of video segments by entering a start time, end time, reel number, and location. There are also provisions for including a title and description, a date, a project name, a client name, and (with ADPro) a small black-and-white picture of the first frame of the clip.

To locate a particular clip, you can flip through the pictures or search on any of the items of information named above. If you have an Amiga-based edit controller, logging and retrieval of video clips is completely automatic. You use Logger to roll the tape, then press an In button at the beginning of each segment and an Out button at the end. Logger notes the in and out points and then scans back to the first frame of the segment and uses the Toaster to grab it. If you don't have an Amiga editor, you can use a GPI trigger for automatic frame capture. Even without an automated editor, you can still use Logger manually.

Logger isn't limited to keeping track of video clips. It also lets you enter still frames, non-Toaster graphics, Amiga animations, Personal Animation Recorder animations, LightWave animations, Studio16 audio clips, Bars&Pipes song files, ARexx scripts, and Video Toaster projects and CG books. Moreover, Logger lets you organize all of the video, graphics, and sound elements you use in production, as well as retrieve any of them directly from Logger by using its search facilities. If you maintain a large library of video footage and graphics elements that you need to reuse from time to time, Logger's record-keeping abilities can be invaluable. DevWare intends to release optional modules for using Logger as a viewing gallery for thumbnail images and even as a complete timeline-based editing system.

The remaining section of Crouton Tools comprises the Utility and Program functions. Like most such programs, Utility allows you to move, copy, rename, and delete files. Unlike most others, however, Utility offers one-button access to fifteen directories used by the Video Toaster—great for novices. The Program section makes it easy to run any of your other programs from inside Crouton Tools.



Crouton Tools' Logger control panel.

Despite its "wall-of-buttons" interface, whenever I was unsure of what a particular button did, I checked the manual, which is both clear and thorough. DevWare also thoughtfully includes a 90-minute videotape that covers the basic operations of each section of the program.

IRKSOME CROUTONS

Unfortunately, Crouton Tools is lax on error checking and is saddled with dormant buttons. The program never warns when operations fail. Rather, the buttons simply stop working. Although you're prompted to enter which programs you use, nonfunctional buttons for software that you don't use still appear on each screen.

Also, when you request to load an image file, the requester displays the RAM disk's directory, so you've got to manually find your file. Because the program doesn't recall which directory you accessed last, you must load files again, beginning at the RAM disk. Even the Utility program is saddled with a fixed set of disk-drive buttons for drives named DH0:, DH1:, and so on. Another drawback is that Crouton Tools uses almost a megabyte of memory (about 256K chip, and almost 700K fast). If you are short of memory, the program may actually make it harder, rather than easier, to use several programs together.

Still, if you have lots of RAM and programs that work with the Toaster, you may find that Crouton Tools' benefits far outweigh its shortcomings. Busy video producers will find that accessing several programs from one screen is good for their productivity. Logger, particularly useful for edit controllers, adds a degree of overall organization, and the Utility section is a boon to those who have trouble finding Toaster files. With some refinement, Crouton Tools has the potential to become an invaluable tool for video producers.

—Sheldon Leemon ■

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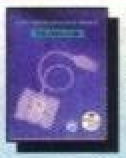

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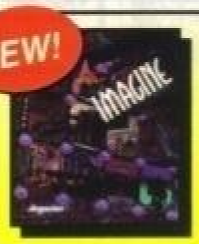

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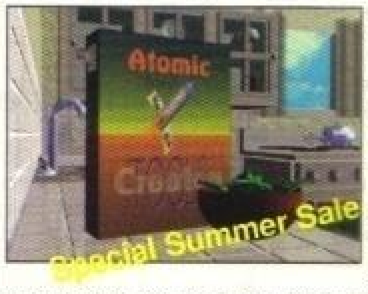

Okay, so you own software like ADPro, SFC, Studio 16, Pixel 3D, ImageFX, Bars & Pipes Pro, AmiLink, Personal Anim Rec., ImageMaster RT and others...and they all say that they're ARexx compatible...great!! Now what? You can spend all your time programming in ARexx to make these powerful applications work with each other, or you can continue producing videos like you set out to do.

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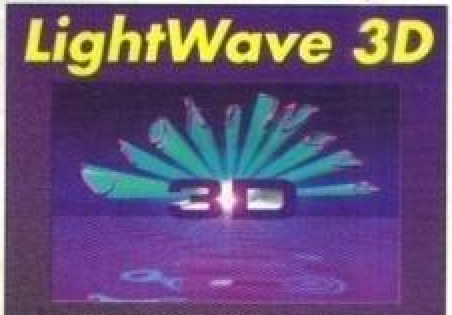

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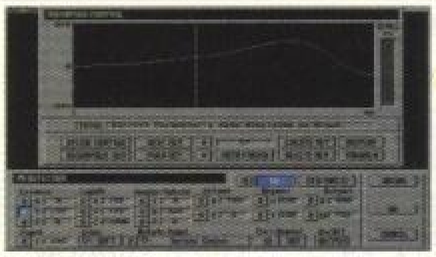

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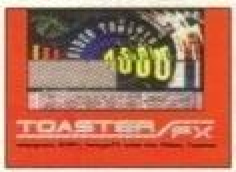

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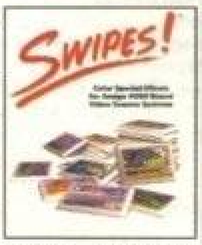

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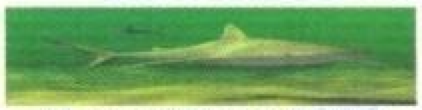

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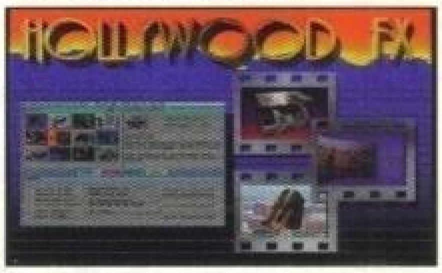

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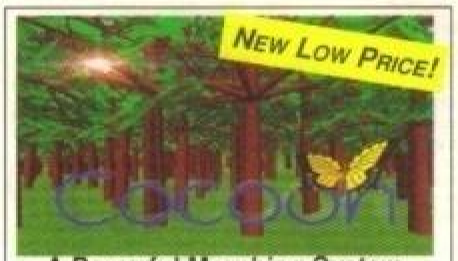

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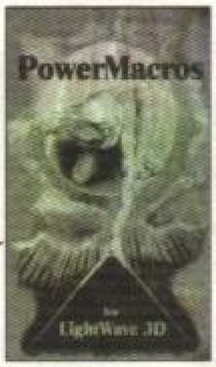

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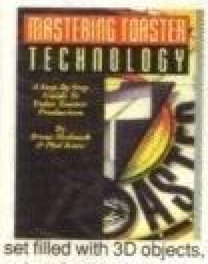

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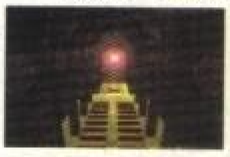

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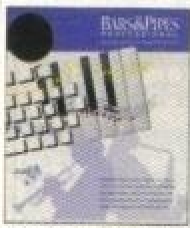

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BEST SELLER!

WB141ABCD: Amiga Verse Search The Authorized 1611 King James Bible...online! Complete cross-referencing to all words is included. Runs on all Amigas with 1MB of RAM and 2 drives. Requires WB1.3+.

NEWEST DISKS

VO11: Toaster Textures reflection maps, bump maps, surfaces and scenes for LightWave.
VO10: MainActor - Animation processor. Reads/writes/converts many animation/picture formats and supports many graphics boards...very nice!
WB146: ImageKnife Loads IFF, JPeg, GIF images, with manipulation like rotation, noise, filters, halftoning, pixelizing, edge detection and more. Requires Workbench 3+
WB145: Big Dummies Guide to the Internet An interactive AmigaGuide to the information highway and how to tap it!
WB144: Molecule CPK renders space filling representations of atoms and molecules. Req's WB3.0+ & Hard drive.
WB143: ViewTek THE definitive display utility. Versions included for Amiga, DCTV, EGS, FC24, Picasso, Opalvision, Retina, IV24. Also includes new MakeAnim7 utility.
WB142: JCGraph A beautiful graphic package...pie charts, 3D charts of all types...exports EPS, IFF & Draw2000 formats!
WB140: Mr. Backup A powerful hard-drive backup utility with full tape-drive support. Formally commercial! Req. WB2+
FD101: WipeOut/Defender Defender is a virtually perfect clone of the original. Wipeout is a multi-scrolling shoot'em up with great graphics and smooth animation. Requires 1MB
FD100: Pengo II A clone of the original coin-op classic. Requires 1MB chip RAM for PAL mode.
FD99: The Shepherd A killer Gods/PowerMonger clone...great graphics and sound effects!. Requires 1MB.
FD98ABC: Klondike AGA - Solitaire a'la outstanding hi-res AGA graphics! Runs in multiscan or any PAL screenmode.
FD97: Bonanza - Battlesheep-a battleship game. Tanx'n'Stuf-seek and destroy in a cool 4-way scrolling world, MileStones--play Mille Bournes against the Amiga and Galactoid--a galaxian type game.
FD96: Tetris Duel AGA - The next generation Tetris..2 players can play head to head and sabotage each other! Great graphics for AGA machines! Req's A1200 or A4000.
FD95: Deluxe Galaga - You should be paying $40 bucks for this one! Easily one of the best p/d games ever! All kinds of power-ups and silky smooth motion. Req's 1MB Chip RAM (Fat Agnus) for PAL Mode.
DD93: Magic User Interface Greatly speeds development, Auto Screen/Window/Font sensitive interfaces and much more!
DD92: Developer Contains the official Commodore developers kits for the AmigaGuide and Commodore Install Utilities, a must have for all serious developers.

FUN DISKS

FD7: Pacman - This disk contains several pacman type games including; PacMan87, MazeMan and Zonix.
FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.
FD12AB: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

DD83: IBM - Not one, but *TWO* IBM emulators that will allow the running of MS-DOS software with Amiga programs!!! Comes complete with programs to turn your Amiga floppy drives into 720K IBM compatible drives. Also, check out our PC-Task emulator on our DevWare Video page!

FD13: Board Games - contains Monopoly, Dominoes, Paranoids, and others.
FD17: Educational Games - This disk includes several games for youngsters including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce; A game that simulates combat between two or more giant robots. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.
FD33: Arcade Games - Ffreddy a Mario Brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and Wetroids a wonderful version of asteroids with a hilarious twist.
FD38: Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.

WB105AB: Workbench 2+ Extras #2
This set contains the programs that should have been included with WB2+. These powerful utilities take full advantage of the many new capabilities that are available in Workbench 2+. Includes: Tool Manager - a wonderful utility to add programs to your TOOL menu, Virus Protection - Degrader, Icon - Enhances Workbench's "Show All" to display over 40 distinct icons for different types of files. Bitmap Font Editor, Screen Blankers - ala fractals and spiners and swarming bees! Requester Enhancers and CPUBlit. Two disk set, counts as two.

FD39A&B: Star Trek, The New Generation - This is a completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Excellent!!! Counts as two disks. Requires 512k
FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.

THE AMIGAWORLD "BEST-OF" SET
FD85ABCD: AmigaWorld's Best - These four disks contain the *hottest p/d games!* Includes Mother Lode, Moria, Minefield, Poing, Intruder Alert, Deluxe PacMan, Rocky and Super Artillery (see Dec. '92 AmigaWorld). Four disk set, counts as three.

FD57: Arcade Games - Includes 2 truly commercial quality games. MegaBall, an Arkanoid-ish game, features 5 musical scores and addicting gameplay. Gravity Attack is a psychadelic trip through several different worlds—each different.
FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate word-search puzzles for any Epson compatible printer.
FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon; a *great* Dr. Mario clone. Enigma; is it a game or puzzle?
FD61: Games - Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or be killed game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.
FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Req. 1 megabyte of memory.
FD67: Arcade - Includes Llamatron a well-done "Robotron" clone. Hate is a "terrific" Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!
FD69: MindGames - Had enough of shoot-em up games? Relax and let these 21 games exercise your mind instead of your wrist.
FD73: Arcade Series - Intruder Alert! is a MULTI-level "Berserk" clone. Features smooth gameplay, great graphics & digitized sound f/x.
FD74: Arcade Series - RingWar is an "Outer Limits" clone with vectorized graphics. MotherLode is a "Lode Runner" clone with 50 levels! In BlitzTanks, they're coming at you from all directions!! Call in air strikes and use your heavy artillery to survive!
FD75: Arcade Series - Descender is a clone of the classic arcade game "Tempest"; complete with vectorized graphics. Tanx is the classic battle of trajectories and inertia between two tanks—incredibly well done! Search is a maze game unlike any other—included is a level editor too. (Tanx requires 1 meg chip memory=Fat Agnus)
FD77: Arcade Series - Galaga'92 is a clone of the arcade game with several gameplay enhancements--with smoooth, sharp graphics, it's better than the original! Pharaohs Curse is a clone of the original C64 classic. Diplomacy is a beautifully computerized version of the Avalon Hill board game--conquer or be conquered!
FD81: SuperGames - Some of *the* best games--Donkey Kong is better than the original *with an extra level!* Frantic Freddie and TrailBlazer are both fast-paced arcade games. Mad Bomber is the classic game of "Kaboom" redone with an Amiga flare. All of these games are excellent!
FD82: Intrepid - In the Arctic ice, you control a tank on a mission to rescue hostages in this superbly crafted Amiga original.
FD84: Games! Deluxe PacMan is better than the original--20+ mazes, special "power-ups" with *oustanding* graphics. ThinkAmania is the classic game of concentration--with *beautifully* drawn HiRes images.
FD86: UChess: The strongest playing Chess program available for the Amiga period. Req. 68030+, Workbench2+, 4MB RAM or more. Supports AGA (req. 8MB!)
FD87: OXYD- A commercial quality game--similar to Marble Madness in nany ways, but allows two computers to link & play together...see how many of the 200 landscapes you can complete without having to get the hint book!
FD88: AmyBoulderdash - a clone of the original classic, extremely well done complete with level editor, 2 complete sets of levels and a level editor. Requires Workbench 2+.
FD89: Kastle Kumquat - A thoroughly entertaining and challenging maze/adventure game. Great soundtrack and graphics. Req's 1MB Chip RAM (for PAL mode).
FD90: Conquest & Dominion - Conquer the known world and maintain dominion over it--a microcosm of economic survival.
FD91: Popeye - A clone of the original C-64 classic--Amiga style with enhanced graphics. Req 1MB chip RAM for PAL.
FD92: Blast'em - contains Scorched Tanks--a tank battle with futuristic weapons/defenses & "great" graphics. Galactoid is a Galaxian/Space Invaders game completely Amiga-tized.
FD93: MegaBall AGA - This is the one you've been waiting for! Updated to knock your socks off! THE best p/d game for the Amiga. Req.'s WB2+ & 1MB RAM. Show off that AGA!
FD94: Scorched Tanks - completely updated and compatible with AGA/3.0! 60 different ways to blow each other away! An outstanding game of angles, trajectories & unique arsenals!

WORKBENCH DISKS

WB4:Telecommunication - This disk contains several excellent pd communication programs: Access 1.42, Comm 1.34 & Handshake 2.12a. See also WB102 & WB115.
WB5: Fonts #1- 35 bitmap fonts. Also included are five PageStream fonts,and ShowFont - a font display program.
WB6: Fonts #2 - ShowFont allows you to quickly and painlessly view all 256 characters in a typical font. Includes large AmigaDos system fonts (many up to 56pts).
WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.
WB9: Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!
WB13AB: Printer Drivers and Generator - over 70 different drivers (including HP LaserJet 3 & 4!), also includes a printer-driver generator. Two disk set counts as two.
WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.
WB23: Graphics and Plotting - Plot, a 3-D mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map IFF image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere.
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.
WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

SPECIAL PRODUCT •NEW RELEASE!!
QT3: THE A64 PACKAGE *VERSION 3* - A very complete Commodore 64 emulator. Supports any CPU and is fully compatible with WB1.3 & 2.0 and now 3.0! This version includes a special adaptor that will allow you to connect your 64's 1541 disk drive to your parallel port of your Amiga for total emulation. All-new transfer software! Special price $59.95 -with hardware.

WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.
WB35: 3D Graphics - This disk contains 3Fonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, World3d - a demo of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbench, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!
WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB43: Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Req. 1.2 MB
WB46: Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ....), people, & transporation.
WB47: Clip Art - Hires clip art. Motifs - hair, drafting, summer, animals and macfood.
WB48: Clip Art - Hires clip art. Motifs - Holidays, music, medical, and misc.
WB53: Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings.... and surreal images. C-Light is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special affects, and more...
WB54: Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio -a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and more.
WB55: Application - XCopyIII - a full featured disk copier, make backups of copy protected disks. RoadRoute - find the quickest route from one city to another, highway description included. Diary - a diary program like "Dougy Houser M.D", Cal - a calendar program, Magman - a database tailored for articles and publications.
WB57: Animation - This disk has several "Demo" animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenomorph.
WB62: Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.
WB63: Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, and forced disk validation of corrupt disks.
WB66: Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.
WB69: Music - 90 minutes of classical and modern electronic music for you Amiga.
WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss)
WB79: Home & Business Accounting - Includes Ckbacct - a checkbook balancer, LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse, Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.

WB119ABCDE: Font Set This collection contains over 100 typefaces for use with Professional Page/PageSetter 3+ or PageStream 2.1 - These fonts will output to any laser printer or dot-matrix printer with no jaggies, thanks to outline fonts. Very pro-looking. 5 disk set, counts as 4

WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.
WB82: Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, & Mechanix. 2 disks, counts as 1.
WB93: Workbench 1.3 Extras #2 Contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.
WB95: Checkbook Accountant 2.1 - Definitely commercial grade; we've seen many checkbook programs and this is the best. Full budgeting, transaction recording & report generation.
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The Game Preserve

By Peter Olafson, AW Games Editor

SPECIAL FEATURE: IS THE AMIGA ON A "ROLE"?—A LOOK AT THE LATEST RPGS

OH, FOR THAT great big game! With the occasional odd exception, Amiga role-playing games since 1992's Might & Magic III and Ultima VI have been less than epic in scope. Something linear and limited, something minor-key and fiddly, seems to have infected the RPG world with the abandonment of the Amiga market by big US developers and the consequent ascendance of their UK counterparts, with their arcade fixation, one-megabyte ceiling, and no-hard-disk regimen. Worlds remain to be conquered, but, by and large, they're finite and tightly knit worlds.

That's not to say the new breed of RPGs is not worthy or that we've seen the last of the epics. (At this writing, the English version of Ambermoon is up in the air with the disappearance of Thalion Germany, but Silmaril's Robinson's Requiem is just around the corner.) You may have to scale back your grandest expectations a notch, but some very pleasant surprises are out there for the having.

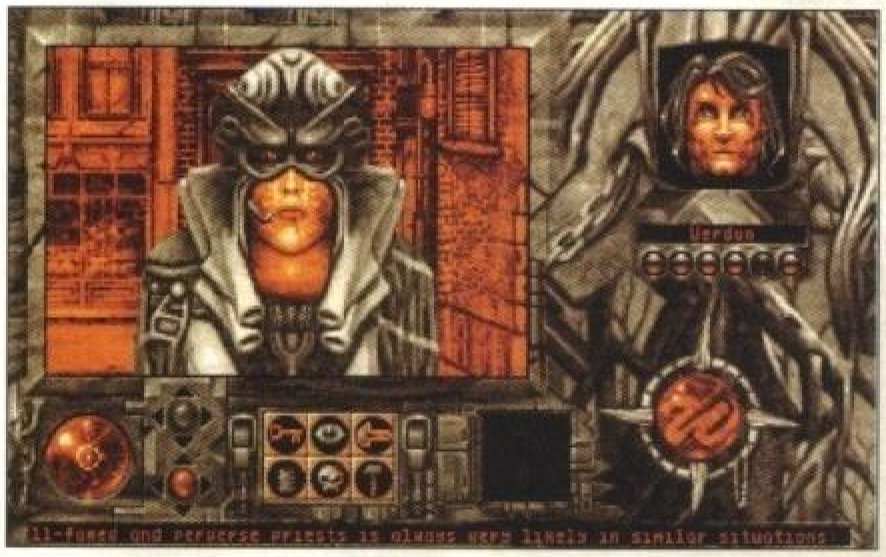
DARKMERE

Darkmere, the much-delayed arcade/RPG (***Core Design***, about $35) is the spiritual descendant of Cadaver—the great Bitmap Brothers-begat isometric adventure. The perspective is the same—that spying-from-the-parapet view—but where Cadaver lived and died by its thicket of puzzles (which were written into the very fabric of the game), here they're the rational foundation for a dark, joystick-driven adventure.

Teleporting into town to root out the evil that has swept over your Dad's kingdom, you start out in the streets collecting keys (the presence of which is even justified within the plot), gradually work your way indoors, then out into the surrounding forest and, finally, the caverns. (Evil is always underground.) Each of these areas is at once enormous in size and rich in detail, so while in truth you may be hemmed in, there's so much ground to cover and so many things to do en route that you never feel that way. (There's no such thing as incidental scenery here; everything that pops up on the menu can be examined.)

It's fun just looking at the game, too. The graphics are instantly appealing—there's a candle-in-a-dirty-glass look to them—but, as in Cadaver, your characters look like a hydrant and it's tough to empathize with a fireplug.

And combat will either annoy you or put you to sleep or both. Tactics appear limited to the age-old whack-until-dead technique executed in rapid-fire mode, and I frequently found myself accidentally turning my back on my foe when what I really wanted to do was club him.



ll-fused and perverse priests is always very likely in similar situations

Perihelion is Psygnosis' venture into the world of RPGs.

Under different circumstances, I might also have moaned about a four-disk AmigaDOS-compliant game that won't run from hard disk. But the right files seem to be in the right places, and there's very little swapping. This is a rich and fascinating game, and while it's easy to tell you now, in the dispassionate glow of a word processor, that it could use a serious tweak or two, once I return to play I can't imagine what I was thinking. Score: B+.

HEIMDALL II

Also from ***Core*** comes Heimdall II (about $35). Heimdall was an epic-in-chains. Its greatest flaw was that it couldn't be installed on hard disk and so was constantly in thrall to the anti-epic pace of floppy access. Heimdall II does go on hard disk; however, it doesn't install correctly. The installation program constantly locked up, and I wound up copying the files over manually.

In any case, hard-drive installability is still a huge asset. The game—which concerns a quest through four worlds for a means to put down the rogue god Loki—has the easy, pleasurable flow that its predecessor so lacked. And the quirks in the gameplay have been excised; it's now one nice smooth surface.

At the same time, I have to confess that I miss Heimdall's quirks; those same oddities lent it character. I miss the attachment to a real world; Heimdall II always feels as though it's off somewhere floating on a cloud. I miss the complexities ►

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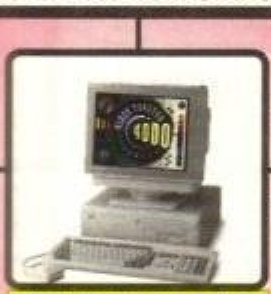

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of the extended party. (Instead, Heimdall II allows you to switch between Heimdall and his female cohort, Ursha. Unfortunately, I could never get Ursha to appear as anything other than a victim of a record-setting Bad Hair Day.) I miss the great, arcade-based character-creation routine and the clever combat subgame. I miss the physical size of the characters; in this PAL-only game, everything seems scaled down. And I miss Heimdall's newness—and the sense of discovery that always accompanies newness. Don't get me wrong: Heimdall II is a good game, but we've seen much of it before, and what we don't see is the trappings that made Heimdall really something special. Score: B+.

LEGACY OF SORACIL

Gremlin's Legacy of Soracil (about $35), the follow-up to HeroQuest—not to be confused with Sierra's hybrid adventure/RPG Hero's Quest—has been vigorously shaken, not stirred, and it's certainly a better game for it. You now control a four-character party. It goes on hard disk. It has a contiguous story, rather than a slew of disembodied missions. And it's distinctly tougher and more clever. They've taken the raw material that was HeroQuest and assembled a grown-up, close-up version of Shadow Sorcerer.

But there's too much fighting here for my blood and not enough adventure, and, consequently, Legacy feels insubstantial. Besides, this is the third time Gremlin has trotted out this game system—the fifth, if you count the data disks for HeroQuest and the HeroQuest-goes-high-tech Space Crusade—and the designers still haven't addressed its central flaw: It still feels like a board game, and if I wanted to play a board game on computer, I'd haul out Risk or Sorry. What's a computer for, if not to conceal the cardboard and dice? Space Hulk, for all its flaws, was a great board-game translation because it brought the game to life. Legacy just animates it. Score: B.

MORE FREELY DISTRIBUTABLE AGA

It never fails. Wash the car and it rains. Rent a movie and it turns up on TV. Publish a piece on half a dozen new freely distributable AGA games, and almost half a dozen more show up in the following two weeks.

Two are AGA-firsts assembled under CanDo. ***Stones*** *(Aminet and CIS) is a Mastermind variant, and* ***Yatzooie II*** *(Aminet) is another take on Yahtzee (which has been done to death of late).* ***Bacman*** *(Aminet and CIS) is a glossy PacMan clone.* ***Klondike II*** *is for hard disk only, and, at this writing, was not yet in general circulation.*

Likewise ***Risk AGA****, which was in beta test but looking very sturdy. It's an authentic Amiga implementation of the classic board game of conquest—with only human or neutral players in version 1.0. Computer opponents are planned for future releases. Just make 'em smarter than the ones in the commercial game!*

—PO

PERIHELION

Psygnosis isn't even pretending to release Amiga products in the US anymore, but it's still plunging ahead in Europe, and Perihelion is one of the most provocative entries in the current crop. (We'll look at the others in an extended Short Takes next issue.) It's the label's first true RPG—they flirted with the concept in Obitus—and one of the few here that I could conjure some excitement over. ►

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When this add went to press, the details of the Commodore re-organization were not finalised, however, all indications are that this change of direction will put the Amiga in it's strongest position ever! We are very excited about the future of the Amiga and are continuing to offer the best possible prices on all available Amiga's.

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CD32: Cool Captures

Maybe I'm just burned out on **The Chaos Engine** after three versions, but I don't see anything all that compelling about the CD32 incarnation of this multidirectional arcade adventure—except that it loads more easily than the willfully boot-resistant, disk-based AGA version (B).

Alfred Chicken (***Mindscape UK***) makes a nice little nest on the CD32—as long as you can tackle a PAL display (B).

CDTV "Conversions"

Trivial Pursuit was such a production number on the CDTV that ***Domark*** barely had to change it for CD32—speech and animations all over the place, a great booming die-rolling sequence, and a general feeling of fun that only rarely accompanies board-game conversions. But it's not really for US gamers: Far too many of the questions are written with only Europe in mind (C+).

Lemmings for CD32 (***Psygnosis***) is grimly identical to Lemmings for CDTV, right down to the demo for the vanished Planetside: No AGA enhancements, no new levels or extra ones from the two sequels or Lemmings II. Nothing special at all, really—except that it's Lemmings, and that's not enough anymore (C).

Prey—an Alien Encounter (*Almathera*) has been fixed to work on CD32, on which it runs at decidedly better speed than on the CDTV. Unfortunately, that's all that was changed, and despite a rich atmosphere, the basic flaws in this 3-D adventure game—which seemed forgivable on a platform with barely an acceptable game—fairly overwhelm Prey on this new one (D+).

The only reason I'm not giving **Town With No Name** (***Online***) a straight F is that this CDTV shovelware's unregenerate primitivism is good for a laugh (F+).

The snapshots used in **Psychokiller** (***Online***), on the other hand, have a *cinema-vérité* quality that give this strange graphic adventure a little push (C-).

It's a very odd RPG, at that. You start out on a hot, dusty world controlling a party of six in search of a way to master the Unborn—an interdimensional Something Or Other that's come frighteningly awake. Along the road, Perihelion calls on elements of Neuromancer (lots of net-lurking, downloading, and chatting), an enjoyable (if impenetrable) iconic spell system, a slick 3-D mode, a wealth of minor graphical touches that usually turn up only in IBM versions of Amiga games—and a certain feeling of unpredictability. It's distinctly an Amiga game, too, in the nicest sense of the word, and just weird enough that you don't know for certain what's coming next and when.

Sure, that also means it'll take you a while to get into it. (It took me three tries.) And, again, the combat is troublesome: It's the turn-based format used in SSI's "gold box" games, only with much better graphics, and the AI is just as witless. But while it never quite gathers the impression of weight, as would an epic, neither does it feel as though it was written in one's sleep. Score: A-.

COVENANT

Actually, we do have one would-be epic here. It's called Covenant, it's published by ***Devware*** (of all people), and it was developed in the US (of all places) by Digital Illusions. Covenant ($49.95) most closely recalls a graphically heated- ►

To locate vendors of the games reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 63.

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up Ultima V, and would not sit awkwardly beside WarWizard on the shelf. This slightly dated six-disker offers an angled-down point of view, delightfully detailed interiors, hundreds of people to talk to (and solid writing in the conversations, too), and a nice icon interface.

Nevertheless, I was left with the impression that it had been pushed out the door before its time. For one thing, Covenant doesn't have any docs. Yup, a six-disk RPG without a manual! Admittedly, it's fun to figure out what the game's supposed to be about, and the operating rules *are* pretty intuitive, but several times I wanted to consult a guidebook on, for instance, why I couldn't get any response from clicking on the "Disk" icon, or to find out what keywords are valid in conversation.

They also haven't encrypted the graphic files. That means the user can see them with any IFF viewer . . . and thus read the epilogue without having to play the game—a discovery I really didn't care to make.

There's only one saved-game position. And, most damning of all, Covenant also doesn't seem to reset its game world properly when you start over. Consequently, regardless of how many times I was killed and reborn or how many new characters I created, I was immediately under attack every time I entered the starting village of Ashdod (where I'd apparently riled up the populace by stealing a fish) until I deleted and then reinstalled this almost three-megabyte game. Not fun . . . and hardly epic. Score: C.

CD32 GAMES

LOCK-N-LOAD

B+
CDTV ✓
Other Amigas –

Now, *this* is what I call games. *Northwest Public Domain* has roped the 500 or so games from the first 150 Assassins games compilations onto a single CD, added in about the same number of freely distributable games from its own archives (nicely organized by directory and bootable from icons), provided scripts to force 600 AGA-unfriendly entries to run (about 80 percent should work on CD32s equipped with mouse and keyboard), and is selling the lot for a bargain-basement $22.49—something over two cents per game.

I could argue over the omission of some titles and the inclusion of others—do we really need 28-plus variations on Tetris?—and a good number need either a keyboard or mouse. But this spirited collection is obviously a labor of love, and NWPD is committed to updates.

• •

FRONTIER: ELITE II

B+
CDTV –
Other Amigas ✓

David Braben's exquisite space-exploration game (*Gametek UK*, about $35) enters CD32 orbit cleaner and at slightly better speed than the disk-based original, which was a bit of a slug on an unaccelerated A1200. The code has been optimized for the CD32's '020 processor, the game seems slightly cleaner and . . . er, that's about it. (Don't mourn for the absence of the IBM version's bitmapped polygons; it was a sort of graphical version of acne.)

Frontier's still as big as creation, the police are still ultradiligent, and you still never know what charming little vacation spot you're going to find in the next system over. Then again, this doesn't begin to push the system.

• •

PIRATES! GOLD

B+
CDTV –
Other Amigas –

A somewhat odd, but not unpleasant choice for *MicroProse UK's* first CD32 game. Pirates! Gold was originally designed to pull the IBM version of Pirates! (which was released in EGA) up to the spec of the Amiga conversion (which put it to shame). So it feels a bit like keeping up with the Joneses for MPS UK to turn around and port Pirates! Gold back to the Amiga. Haven't we seen this already? Shouldn't this be something like The Legacy or Starlord instead?

Well, yea and nay, m'lad. A nifty Silicon Graphics-generated intro adorns this new version, the interface has been made much more adventure-like and participatory, and I didn't recognize a few other features from the original. But the game proper is similar to Pirates!—essentially, it's a VGA rendition of the original—and you're still the terror of the Caribbean, getting into swordfights and cannon duels (the latter are great fun), stealing, trading, and following the winds of information.

It also inherits the limitations of its parent: Pirates! Gold is wider than it is deep, and consequently gets dull after a while. But given the crush of quick Amiga ports and the shortage of big new products (which should begin to be rectified by the time you read this), this is going to stand out for a while.

• •

PROJECT X/F17 CHALLENGE

ALIEN BREED: SPECIAL EDITION/QWAK

B–
CDTV –
Other Amigas ✓

They're back. *Team 17's* first CD32 releases are a pair of two-fer compilations (about $35 each), each featuring two straight conversions of the label's budget hits.

They're all at least as good as they were on floppy—Alien Breed plays especially well here—but haven't been bumped up in any obvious way. The only bonus is that F17 Challenge, which I fairly loathed on disk, has been made NTSC compatible, and this full-screen version brings out innate Pitstop tendencies that weren't given free rein in the trimmed-down screens of the PAL original. And that, in turn, gives greater prominence to weather effects (and their gradual disappearance), the importance of speed in and out of the pits, and the way you can't advance past a certain gear once you take a certain level of damage. It does take a while to load, though, and the collisions remain an embarrassment.

It's also inconvenient to have the docs available only on CD, and the game pairings are rather odd. Why not Overdrive to go with F17, or Superfrog to go with the buoyant, Bubble Bobble-like fruit harvester, Qwak?

• •

DANGEROUS STREETS

D–
CDTV –
Other Amigas ✓

What can you say about a game whose most prominent feature is the nearly bare bottom of the woman on the cover? The characters and backdrops in this beat-'em-up (*Flair*, about $35) are quite pretty, making for some luscious back-of-the-jewel-box stills, but that impression lasts exactly as long as it takes to touch the controller, because the gameplay has no redeeming qualities whatsoever. It's amazing that Commodore UK included this in a bundle. Wait for Ultimate Body Blows (look for a review in an upcoming issue) instead. ■

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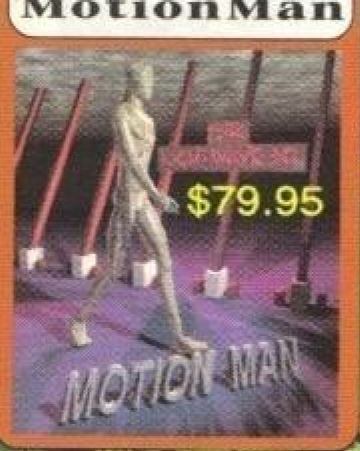

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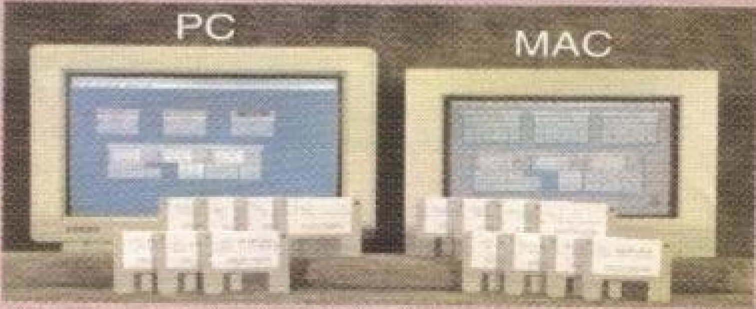

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- Supports 4, 8, 16, 32 MB SIMM Modules.
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- Supports DMA access from Zorro III Devices to onboard Memory.
- A3000 Version Supports up to 64MB of 32Bit Memory.
- A3000 Engine will clock 16MHz MotherBoards at 25MHz.

Compatibility
- Compatible with the Video Toaster, Retina Z-III and OpalVision.
- Works in all 3000, and 4000 series Amigas.
- Requires AmigaDos 2.1 or greater.
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The WARP ENGINE Is an 040 Accelerator with a High-Speed SCSI-2 controller & up to 128MB of ram expansion, All-In-One!

How Fast Is The Warp Engine?

Rendering Lw3D Texture Example

A4000/040-25MHz:	160 sec.	
A4000 Warp 28MHz:	82 sec.	- aprox. 2x faster
A4000 Warp40MHz:	56 sec.	- aprox. 3x faster

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Read 9MB/sec with 94% of the CPU still availible.

40 MHz 68040 Accelerator for the VideoToaster/4000

The Warp Engine Series of Accelerators is a break-through in Amiga Expansion design. The Warp Engine comes in three versions for the Amiga/ Toaster 4000 and three for the Amiga 3000.

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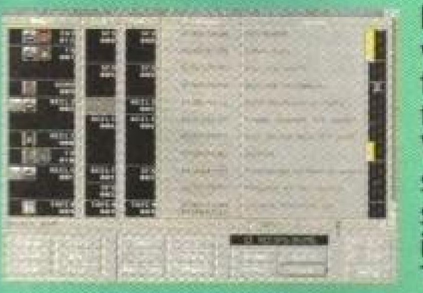

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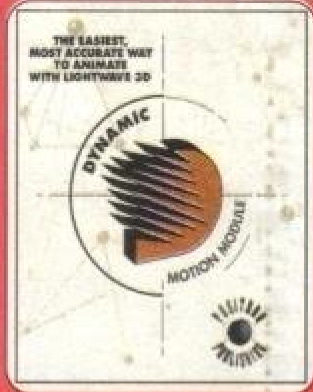

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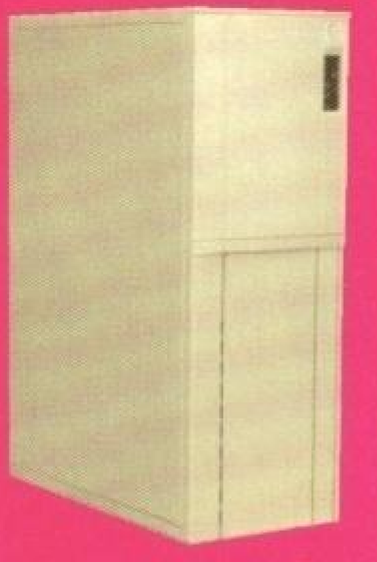

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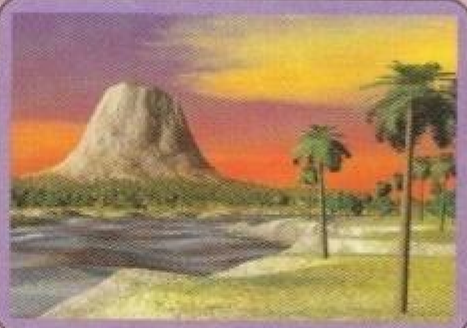

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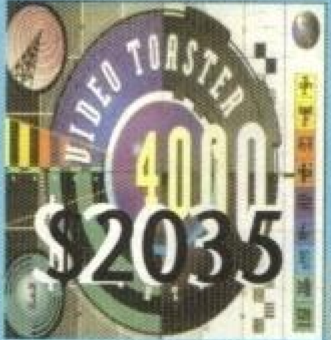

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A4000Toaster Warp System:	**A4000Toaster Oven Warp System:**
40MHz-040	40MHz-040
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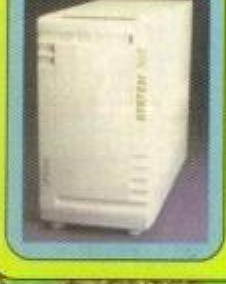

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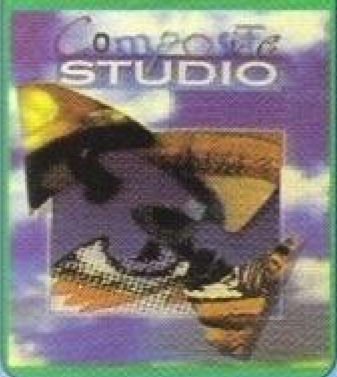

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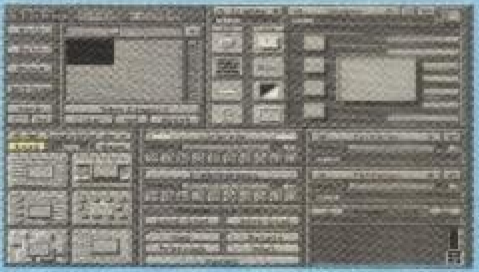

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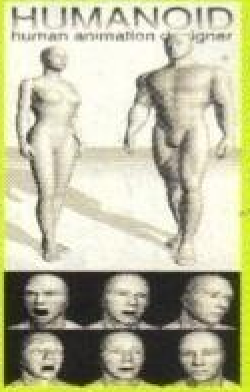

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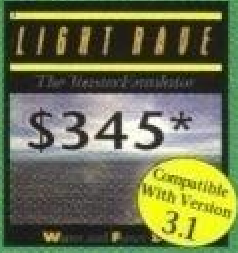

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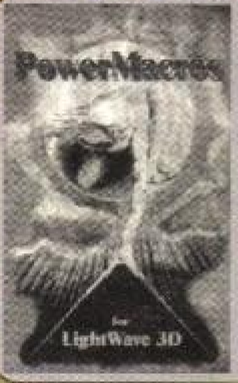

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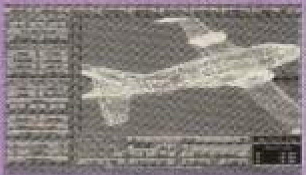

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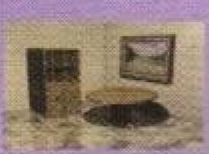

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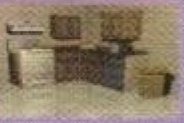

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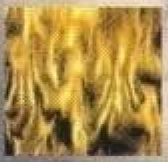

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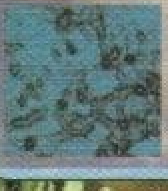

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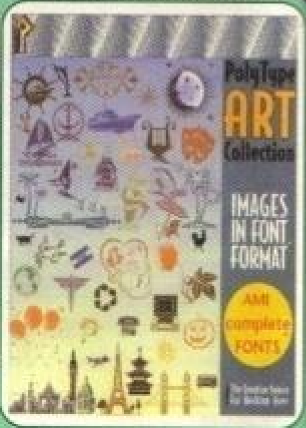

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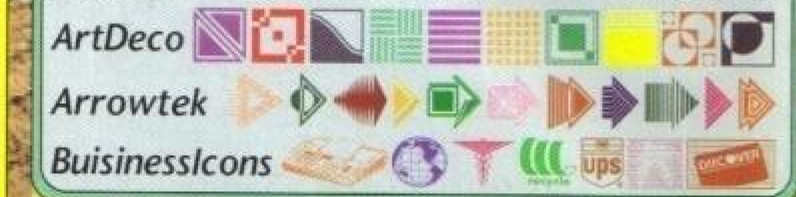

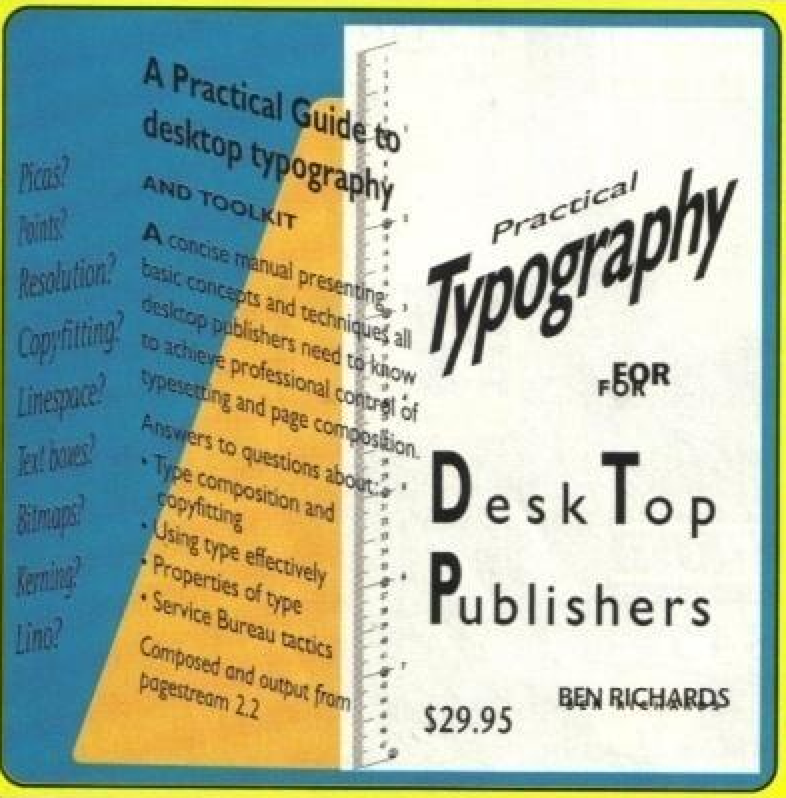

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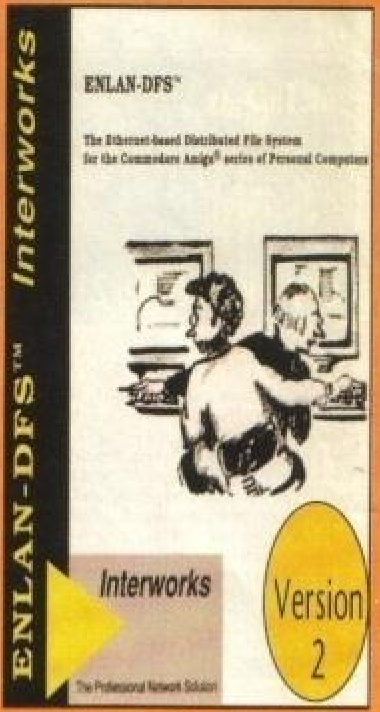
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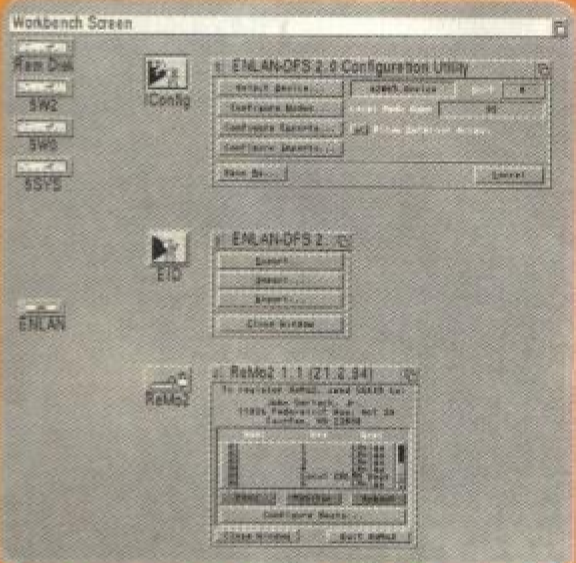

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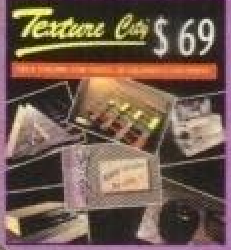

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THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

THE LATE LAMENTED—REPRISE

The Amiga market has been failing for a long time, making Commodore's demise seem rather like the death of a terminally ill patient: sad to see, but somewhat of a relief now that it's over.

I am more disturbed by the "shrinking magazine" syndrome displayed by both *AmigaWorld* and *Amazing Computing*. Both magazines have hovered at about 96 pages for a year or so; the last issues were only 80 pages. Apparently, vendors and developers are not confident enough of the Amiga's future without Commodore to spend money on advertising.

Commodore may be expendable, but an Amiga without a support network of vendors and developers is little more than an expensive paperweight.

Jeffrey Powell
West Covina, California

Since Commodore went belly-up, the future looks hopeless. I don't say this because I think the Amiga will die without Commodore around, but I think that without a company that actually builds them, support for the Amiga will dwindle and die as third-party companies shift their attention elsewhere. Then I think I'll have to sell my computer.

The problem is, I really hate IBM's system. It is user-antagonistic, and their Windows program is a joke. Macintosh is okay, but too expensive. Where, then, to turn?

Greg S. Burns
Anchorage, Alaska

Bad news travels fast! A friend of mine read a *Los Angeles Times* article about Commodore going belly-up and told me. Today, Creative Computers confirmed it to me over the phone. There are still millions of C-64s, C-128s and Amigas all over the country, and I am determined to keep my C-128 and A500. We will need a magazine devoted to all us Commodore computer owners. So please do not fold. Just shift your focus.

Clyde Corson
Lawndale, California

*Editor's note: We have received several letters chiding **AmigaWorld** for failing to mention Commodore's demise in the May or June issues, rather implying that we didn't care. Dear readers, we do care! But it's a fact of monthly-magazine-publishing life that the material must reach the printer about two months before an issue appears. So our June issue was already at the printers about two weeks before April 29th, the day Commodore died. We've all known for years that Commodore was in trouble, but we're not sufficiently clairvoyant to have forseen its death weeks ahead of the event.*

> **An Amiga without a support network of vendors and developers is little more than an expensive paperweight.**

OF NONLINEAR EDITORS

Writing about ***NewTek***'s **Video Flyer** ("Video in Focus," *AW* June '94), Paulo de Andrade states that " . . . the Flyer—in my opinion—is the only true complete nonlinear editor." The fact is that the only currently existing nonlinear editing system (NLE) for the Amiga is ***Digital Micronics*'** **Broadcaster 32**.

If an NLE can use any Amiga program and any 24-bit format, has custom transitions, and is sitting here at our facility being used for broadcast-quality video productions, then that [Broadcaster 32] is a complete NLE.

Fritz Hartman and John Rubino
Georgetown, Pennsylvania

I am glad you are happy with the Broadcaster 32. It was not my intention to put this important product down. On the contrary, Digital Micronics deserves a lot of credit for it. It is regarded by many as the NLE with the best image quality.

It seems that you misunderstood my statement. I meant that the Flyer is so far the only package that offers a complete solution out of the box with its included set of production tools. The 3-D-animation part of the package may not be important for nonlinear editing, but the character generator, real-time transitions, color manipulation, and even the paint program certainly are.

By contrast, the Broadcaster 32 does not come as a complete solution. You must purchase separate programs to be able to perform complete edit sessions. While this may not be a problem for you and other Amiga users, many videographers with little or no computer experience are much better off acquiring a complete package that requires minimal training to use.

You point out one very important advantage the Broadcaster 32 has over the Flyer—it's available now! While it may not be a truly complete solution, it is a very capable one and should be seriously considered by those looking for an NLE system.

—Paulo de Andrade

SILENT COMPANIES

I am concerned about the apparent inactivity of some Amiga developers in producing hardware for the newer AGA machines. Three of these spring to mind immediately: Supra, I.C.D., and Roctec. While I've seen ads in *AmigaWorld* for Supra's modems and Roctec's genlocks, I haven't been aware of any new products from these companies in quite some time. Could you update us about their status?

Bob Stinson
Maple Ridge, B.C., Canada

Unfortunately, none of our editors has seen hide nor hair of any new Amiga releases from these companies.—Eds. ■

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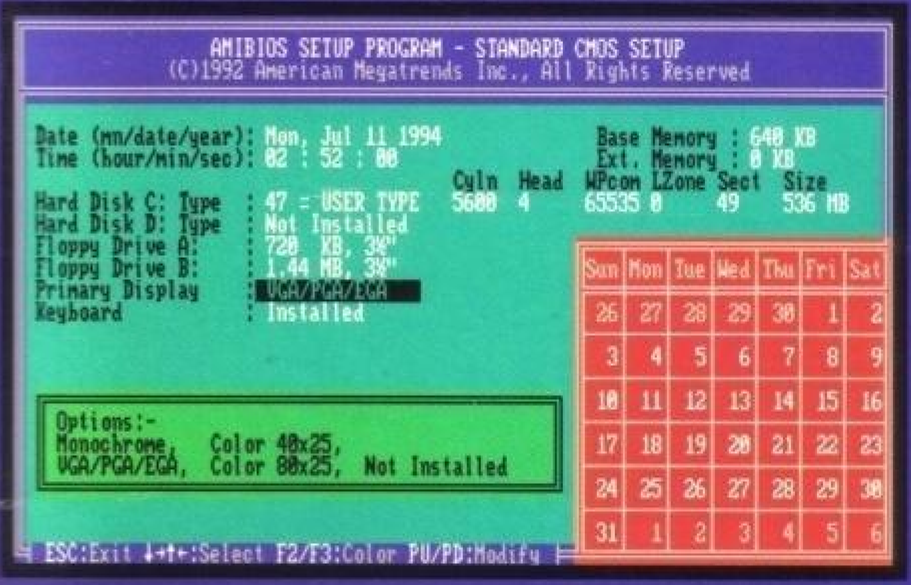

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Hard Disk C: Type   : 47 = USER TYPE 5600  4     65535 0     49    536 MB
Hard Disk D: Type   : Not Installed
Floppy Drive A:     : 720  KB, 3½"
Floppy Drive B:     : 1.44 MB, 3½"
Primary Display     : VGA/PGA/EGA
Keyboard            : Installed

 Options:-
 Monochrome,   Color 40x25,
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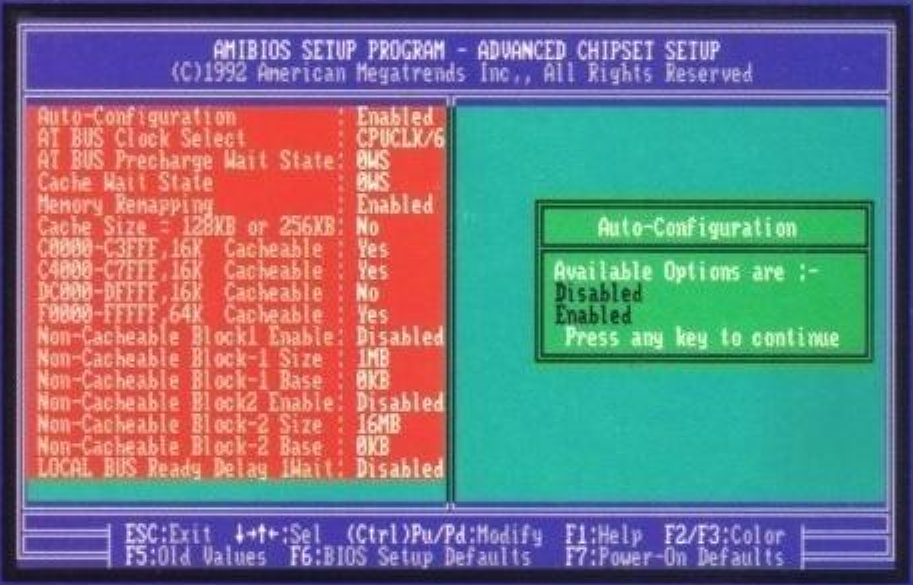

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C4000-C7FFF,16K  Cacheable    : Yes
DC000-DFFFF,16K  Cacheable    : No
F0000-FFFFF,64K  Cacheable    : Yes
Non-Cacheable Block1 Enable: Disabled
Non-Cacheable Block-1 Size    : 1MB
Non-Cacheable Block-1 Base    : 0KB
Non-Cacheable Block2 Enable: Disabled
Non-Cacheable Block-2 Size    : 16MB
Non-Cacheable Block-2 Base    : 0KB
LOCAL BUS Ready Delay 1Wait: Disabled

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 Enabled
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The 486DX emulation is a hardware and software upgrade. New custom logic IC's (user installed), documentation, and software is included with the upgrade kit. Price: $99.95.

Four different versions of EMPLANT are available, ranging in price from $279.95 to $399.95. EMPLANT comes with the Macintosh emulation (486DX emulation sold seperately). Order direct from Utilities Unlimited Intl., Inc. or from one of our dealers (more than 200 dealers across the US and overseas carry EMPLANT). US customers, please include $10 for shipping/handling (all orders are sent UPS 2 day delivery). Customers outside North America, please contact Blittersoft: +44 0908 666265 for the dealer nearest you.
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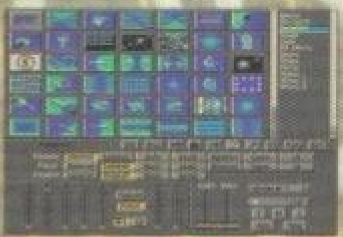

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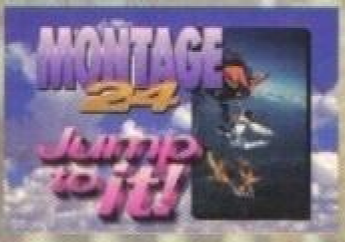

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